

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2550.—VOL. LIV.

LONDON, SATURDAY, JULY 5, 1884.

WITH SUPPLEMENT. PRICE SIXPENCE. BY POST, £1 4s. PER ANNUM.

MR. JAMES H. CROFTS, STOCK AND SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING STOCKS and SHARES (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in STOCKS and SHARES not having a general market value.

Every Friday a general and reliable List issued (a copy of which will be forwarded on application), containing closing prices of the week.

MISCELLANEOUS SHARES.—Brighton Aquarium, General Credit, Hudson's Bay, Native Guano, Suez Canal, Westminster Aquarium, and Hotel Shares.

SHARES SOLD FOR FORWARD DELIVERY, ONE, TWO, OR THREE MONTHS, ON DEPOSIT OF TWENTY PER CENT.

BUSINESS at CLOSE PRICES in all Market TIN, COPPER, and LEAD SHARES.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS.—SPECIAL BUSINESS.—Fortnightly Accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS.—SPECIAL BUSINESS.—Fortnightly Accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

AMERICAN AND CANADIAN STOCKS AND SHARES.—SPECIAL BUSINESS.

Fortnightly Accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

GOLD AND SILVER MINES.—SPECIAL BUSINESS in ALL marketable INDIAN GOLD SHARES, and in Colombian Hydraulic, California, Caliao, "Bis," Gold Coast, Guinea Gold Coast, Kongsberg, New Caliao, Oscar, West Caliao, Tolima A, Tolima B, La Plata, Ect., Tinto, Frontino and Bolivia, Potosi, Chile, Nouveau Monde, Ruby, Richmond, Victoria.

SHARES IN THE ABOVE SOLD FOR FORWARD DELIVERY, ONE, TWO, OR THREE MONTHS ON DEPOSIT OF TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS SHARES of all DESCRIPTIONS BOUGHT or SOLD.—SPECIAL BUSINESS.—Brighton Aquarium, General Credit, Hudson's Bay, Native Guano, Suez Canal, Westminster Aquarium, and Hotel Shares.

SHARES SOLD FOR FORWARD DELIVERY, ONE, TWO, OR THREE MONTHS, ON DEPOSIT OF TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

OSCAR GOLD.—SPECIAL BUSINESS in either the FULLY or PARTLY PAID shares.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

TRANSVAAL GOLD AND SOUTH AFRICAN DIAMOND FIELDS.—SPECIAL BUSINESS in all Transvaal Shares, including LISBON-BERLYN, TRANSVAAL, SPITZ KOP, SCHWAB'S GULLY.

SHARES IN THE ABOVE SOLD FOR FORWARD DELIVERY ON DEPOSIT OF TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,

44, THREADNEEDLE STREET, LONDON, E.C.

ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.

RAILWAYS, BANKS, FOREIGN and COLONIAL BONDS, TRAMWAYS, TELEGRAPH, and all the LEADING INVESTMENTS ACCOUNTS OPENED FOR THE FORTNIGHTLY SETTLEMENT.

A List of Investments free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:

150 Almada, 50 Goginan, 70 Potosi (New), 50 Asia Minor, 100 Gold Coast, 100 Prince of Wales, 50 Bratsberg, 100 Great Laxey, 50 Polberro, 100 Birdseye Creek, 100 Home Mines Trust, 30 Pannicillo, 100 Chontales, 25 Killifreth, 100 Pen-yr-Osred, 75 Colombian Hydraulic, 50 Kapanga, 25 Roman Gravel, 25 Chile Gold, 40 Leadhills, 40 Ruby, 25 Colorado, 100 La Plata, 100 South Caradon, 100 Copiapo, 50 Lisbon-Berlyn, 15 Tolima A, 50 Caliao Bis, 20 Miners, 250 Toopilla, 20 Dolcoath, 100 Mounts Bay, 50 United Mexican, 100 Duchy Peru, 100 Nouveau Monde, 50 Wheel Coates, 100 East Wheel Rose, 20 N. Trumpet Consols, 70 West Godolphin, 15 East Pool, 25 New Kitty, 10 West Grenville, 25 Eborhard, 25 Orita, 50 Wheel Crebor, 75 Frontino, 80 Old Shepherds, 75 West Polberro, 25 Grogwinion.

S.B.—Prices of the above on application, or offers may be made. Several lots of shares in this list are for sale considerably under the prices at which they are quoted in Circulars and elsewhere.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

Mr. Bumpus devotes special attention to these Securities, and is in a position to afford reliable information and advice to intending investors and others.

WILLIAM HENRY BUMPUS, SWORN BROKER.

OFFICES: 44, THREADNEEDLE STREET, LONDON, E.C.

ESTABLISHED 1867.

BRITISH AND FOREIGN MINING OFFICERS.

Messrs. PETER WATSON AND CO.,

18, AUSTIN FRIARS,

OLD BROAD STREET, LONDON, E.C.

BANKERS: THE ALLIANCE BANK (Limited).

Messrs. PETER WATSON AND CO.'S
BRITISH AND FOREIGN MONTHLY MINING NEWS—STOCK
AND SHARE INVESTMENT NOTES—MINES, MINERALS, AND
METAL MARKETS—SHARE LIST, No. 865, VOL. XVII., for JULY
month, will shortly be ready and will be sent to customers on application.

Annual Subscription..... 5s. | Single Copy..... 6d.

MR. ALFRED E. COOKE,
BRITISH AND FOREIGN STOCK AND SHARE DEALER,
9, OLD BROAD STREET, LONDON.

ESTABLISHED 1853.

(Opposite the Stock Exchange, with which his offices are in DIRECT
TELEGRAPHIC COMMUNICATION.)

RAILWAY STOCKS bought and sold at net prices free of commission.

FOREIGN STOCKS bought and sold at net prices free of commission.

SAFE INVESTMENTS effected to yield from 3 per cent. per annum and upwards.

MINING SHARES dealt in at close net prices.

SPECULATIVE ACCOUNTS opened in Railway, Foreign, and American
Stocks for the Fortnightly Settlement on receipt of cover.

SHARES SUPPLIED for forward delivery on payment of deposit.

Mr. COOKE has correspondents in every important city and town in England,
whereby he can deal in Local Shares of every description.

Daily and Weekly Lists of Prices issued to clients on application.

ADVANCES MADE ON STOCKS AND SHARES.

Letters and Telegrams receive immediate personal attention.

BANKERS: ROYAL EXCHANGE (Limited), Cornhill, London.

MR. JAMES STOCKER, STOCKBROKER,

2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

Has Special Business in the following for cash or settlement by arrangement

free of commission:—

40 Alamillos, 100 Gold Coast, 75 Potosi (New), 65 Alankoo, 60 Home Mines, 45 Ruby & Dunderberg, 40 Bratsberg, 60 Kapanga, 30 Richmond, 50 Californian, 60 Kongsberg, 20 Rio Tinto, 100 Caliao Bis, 50 La Plata, 30 Schwab's Gully, 55 Chile Gold, 65 Lisbon-Berlyn, 25 Tolima A, 100 Chontales, 35 Mason and Barry, 20 Tolima B, 100 Colombian, 70 Montana, 70 Trevaan, 25 Colorado, 75 New Caliao, 50 Transvaal Gold, 75 Cor. So. Austr. Cop, 70 Old Shepherds, 25 United Mexican, 45 Ecton, 85 Orita, 100 Victoria Gold, 50 East Rose, 100 Organos, 60 West Caliao, 90 Frontino, 85 Oscar Gold, 70 Oscar, 7s. 6d. paid, 100 Colombian, 50 Old Shepherds, 60 Victoria Gold, 50 California, 80 Organos, 60 Victoria Gold, 70 Home Mines, 100 Orita.

The following SHARES WANTED FOR CASH:—

100 Colombian, 50 Old Shepherds, 70 Oscar, 7s. 6d. paid, 50 California, 80 Organos, 60 Victoria Gold, 70 Home Mines, 100 Orita.

Railways, Foreign Bonds, Gold and Silver Mines, Miscellaneous Shares, and all Stock Exchange Securities.

ESTABLISHED 1851.

BANKERS: LONDON AND WESTMINSTER.

Messrs. H. HALFORD AND CO.,

STOCK AND SHARE BROKERS, E.C.,

2, ROYAL EXCHANGE, VENUE, E.C.,

Have BUSINESS in ECTON COMPANY SHARES.

SELLERS are requested to communicate with the above.

JOHN BISLEY, STOCK AND SHARE BROKER,

AND MINING SHARE DEALER,

38, CORNHILL, LONDON, E.C.

ESTABLISHED 1860.

BANKERS: LONDON AND WESTMINSTER, Lothbury, E.C.

MR. E. J. BARTLETT, STOCK AND SHARE DEALER,

30, GREAT ST. HELENS, LONDON, E.C.

Selected List of Investments post free on application.

MR. W. B. COBB, 29, BISHOPSGATE STREET WITHIN,

LONDON.

(Formerly secretary of the Malpas Gold Mine, now the Colombian Hydraulic Gold Mining Company (Limited), a successful mine.)

BANKERS: THE ALLIANCE BANK (Limited), London.

Special information and business in all mines in the United States of Colombia—Tolima, Western Andes, Colombian, and other gold and silver mines in that country.

In direct communication each mail with the highest mining authority in Colombia, through whose private advice I am able to give most valuable information as to mines in the Tolima district, and other mines in the country. See Circular, price 1s.

STOCKS AND SHARES.

JOHN LENN AND CO.'S CIRCULAR, POST FREE,

contains Highest, Lowest, Latest Prices of all Stocks and Shares, also shows the return per cent. at a glance.

JOHN LENN AND CO.'S CIRCULAR, POST FREE.

The advice given in their former Circulars has enabled investors to make from 50 to 150 per cent. in a week.

JOHN LENN AND CO.'S CIRCULAR, POST FREE,

contains special information respecting the safest investments obtainable, paying from 5 to 12½ per cent.

JOHN LENN AND CO. (LIMITED), STOCK AND SHARE DEALERS, 4 AND 5, GROCERS' HALL COURT,

LONDON, E.C.

Messrs. J. TAYLOR AND CO.,

MINING ENGINEERS AND INSPECTORS,

(Late of 86, London Wall)

91, FINSBURY PAVEMENT, LONDON, E.C.

Special attention given to Mines in Mexico and United States of America.

Inspections, Reports, and Consultations as to Working Machinery, &c.

Messrs. ENDEAN AND CO., STOCK AND SHARE DEALERS, 25, GRACECHURCH STREET, LONDON, E.C.

ESTABLISHED 1863.

BANKERS: LONDON AND WESTMINSTER, Lothbury, E.C.

JOHN B. REYNOLDS, STOCK AND SHARE DEALER,

37, WALBROOK, LONDON, E.C.

Established Twenty-five Years.

BANKERS: LONDON JOINT-STOCK.

POLBERRO, ST. AGNES.

The shares of this mine are in favour, and will advance probably to a very high figure. The mine has been inspected by gentlemen who are well known, and whose opinions are universally respected. Mr. REYNOLDS will be happy to furnish the particulars of their report, and to give to his correspondents any information in his power. The books of the company and all other particulars are open for inspection at the company's offices. The management is the same as that of West Kitty, and the property promises to be of a very high order. Mr. REYNOLDS directs attention to the fact that those who have purchased the shares can already obtain a fair profit. Mr. REYNOLDS further directs attention to the fact of his having been the first to introduce West Kitty, under very similar circumstances to those which now characterize Polberro, St. Agnes, and Mr. REYNOLDS with equal confidence recommends the latter company's shares. West Kitty, with at present 12s. per share paid, returns 30s. per share per annum as a minimum dividend with every prospect of further increase. When West Kitty shares had only 2s. per share paid they were at a premium of 25 each.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE, LONDON, E.C.

SPECIAL BUSINESS in the following:—

80 Alankoo, 100 Caliao Bis, 80 Organos, 50 Birdseye Creek, 80 Chontales, 40 Oscar Gold, 80 Blue Hills, 30 Devon Consols, 40 Wheel Castle, 70 Bratsberg, 50 Duchy Peru, 70 Wheel Crebor.

SHARES WANTED:—

80 Almada, 100 Colombian Hydraulic, 80 Orita, 50 Bratsberg, 20 Leadhills, 50 Oscar Gold, 60 Chile Gold, 30 Montana, 60 Victoria Gold.

Sellers should state whether for cash or account, and name their price.

Fortnightly accounts opened in Home Railways, Foreign Bonds, American and Canadian Railways, on receipt of the usual cover.

BANKERS: LONDON AND WESTMINSTER, Lothbury.

MR. CHARLES THOMAS,

MINING AGENT, STOCK AND SHARE DEALER,

3, GREAT ST. HELENS, LONDON, E.C.

MR. ALFRED THOMAS,

MINING ENGINEER, AND STOCK AND SHARE DEALER,

10, COLEMAN STREET, LONDON, E.C.

ESTABLISHED 1852.

MR. HENRY J. TALENTIRK,

STOCK BROKER AND MINING SHARE DEALER.

SPECIAL BUSINESS in all Home and Foreign Mines at close prices.

JULY CIRCULAR on application, containing valuable information and advice to investors, post free.

SHARES SOLD for forward delivery in one to three months upon usual deposit.

OFFICES:—21, THREADNEEDLE STREET, LONDON, E.C.

BANKERS: CITY BANK, Threadneedle-street, E.C.

MR. J. GRANT MACLEAN,

SHAREBROKER AND IRONBROKER, STIRLING, N.B.

Refers to his Share Market Report on page 777 of to-day's Journal.

MR. W. TREGELLAS, 40, BISHOPSGATE STREET WITHIN, E.C.

Deals in all descriptions of STOCKS and SHARES at close market prices.

HORACE J. TAYLOR,

(Seven Years Assistant-Secretary to the Port Phillip and Colonial Gold Mining Company (Limited).)

38, GREAT ST. HELENS, LONDON, E.C.

STOCK, MINING, AND MISCELLANEOUS DEALER.

ESTABLISHED 1874.

BANKERS: CENTRAL BANK OF LONDON (Limited).

Early information from a special and reliable authority can be given on application as to all mines situated in the United States of Colombia.

BUSINESS in Tolima A and B, Colombian Hydraulic, Organos, Orita, and Frontino. Buyers and sellers would do well to communicate.

PROFITABLE INVESTMENTS.

TRUST MORTGAGE AND INVESTMENT COMPANIES

PAYING FROM FIVE TO TEN PER CENT.

Further fall in the value of money. Reduction in the Bank rate. Reduction in the rates allowed on deposits.

FROM ABBOTT, PAGE, AND CO.'S SPECIAL ISSUE.

STOCKBROKERS,

42, POULTRY, LONDON, E.C.

Complete Copy, with Monthly (July) Circular, sent post free on application.

BRITISH AND FOREIGN MINING AGENCY.

HEAD OFFICE: CAMBORNE, CORNWALL.

LONDON AGENTS: FEARCE, SHARPE, AND CO., 59 AND 60, CORNHILL, E.C.

Mines inspected at home or abroad. Miners, Engineers, and Mechanics engaged for service in Foreign Mines. Indents for Machinery and Materials received and placed in best manner. Mining Plant and Machinery safeguarded and sold either by Public Auction or Private Contract.

THIS AGENCY DOES NOT UNDERTAKE THE BUYING OR SELLING OF MINE SHARES.

ESTABLISHED 1866.—THIRTEEN YEARS IN CORNWALL.

SAMUEL JAMES, STOCK BROKER AND MINING SHARE DEALER, 14, ANGEL COURT, LONDON, E.C.

Member of the Redruth Mining Exchange.

Those who wish to buy or sell any mining shares should consult Mr. JAMES. Mr. J. devotes his entire attention to home and foreign mines, and places his special information at the disposal of his clients. That mining offers undoubted advantages for quick returns no one can deny. Look at the enormous sums of money paid in dividends by home and foreign mines. A large number of wealthy families owe their present proud positions to adventuring in LEGITIMATE MINES. With a better price for metals many of the smaller priced shares would immediately advance some hundreds per cent.

OSCAR GOLD SHARES SHOULD BE BOUGHT AT ONCE.

There are many mines worth attention, as proceedings of recent shareholders' meetings prove beyond doubt. During the last 40 years there has been such opportunity presented itself as the present for investment in British mines. Metals are certain to advance. In well-informed circles no doubt is entertained on this point. Buyers must not further delay orders.

See Selected List published by S. JAMES, 14, Angel-court, London, E.C.

SPECIAL BUSINESS in the following or part:—

20 Bedford United, 25 South Caradon, 100 Colombian Hydraulic, 15 Carn Camborne, 10 South Condurrow, 100 Corp. 8th. Austr. Cop, 5 Cook's Kitchen, 100 South Darren, 50 Denver Gold, 120 Collicombe Consols, 25 South Devon United, 100 Flagstaff District, 25 D'Ereby Mountain, 20 South Frances, 25 Frontino, 10 Devon Consols, 150 Tamar, 40 Gold Coast, 100 Devon Friendship, 110 Trevaan, 50 Hoover Hill, 20 Devon United, 30 Tankerville Gt. Cons, 100 Indian Consolidated, 5 Drakewalls, 25 Trevaunance, 100 Indian Glenrock, 5 Dolcoath, 80 West Caradon, 15 Javali, 5 East Blue Hills, 50 West Crebor, 40 Kohinoor B, 25 Ecton, 80 West Gonamena, 100 Kapanga, 50 East Caradon, 25 West Kitty, 45 La Plata, 100 East Wheel Rose, 25 West Polberro, 50 Last Chance, 15 Frongoch, 20 Wheel Basset, 50 Lisbon-Berlyn, 100 Goginan, 30 Wheel Coates, 20 Montana, 100 Great Laxey, 50 Wheel Crebor, 20 Nouveau Monde, 50 Oscar Gold, 7s. 6d. pd, 20 Gunnislake (Clitters), 100 Wheel Jane, 50 Organos, 5 Great Holway, 25 Wheel Silver & Lanteglos, 50 Orita, 20 Home Mines Trust, 100 Wheel Crebor, 50 Orita, 20 Killifreth, 300 Antioquia, 50 Asia Minor, 15 Port Phillip, 20 Kitty St. Agnes, 25 Alankoo (fully paid), 25 Pannicillo, 25 New Kitty, 50 Birdseye Creek, 100 Ruby & Dunderberg, 80 Bratsberg, 80 Cartago, 7s. 6d. paid, 200 Taquah, 100 Old Gunnislake, 160 Cankim Bamoo, 35 Toopilla, 100 Polberro, 10 Copiapo, 12 Tolima A, 100 California Gold, 100 Transvaal Gold, 30 Prince of Wales, 55 Caliao Bis, 20 United Mexican, New 50 Parys Copper, 80 Chile, 75 Victoria Gold, 20 Roman Gravel, 25 Chontales, 50 West Caliao.

* S. JAMES can buy or sell any of the above shares. Correspondence invited. Trustees, executors, and others will find their duties considerably lightened by submitting schedule of shares held to Mr. JAMES, who will return the same by next post with market values attached.

Orders by letter or telegram promptly attended to. Speculative accounts not opened on any terms whatever. Send for selected list of Mines. CLOSING PRICES issued every Tuesday and Friday.

TELEPHONE NO. 212.

BANKERS: IMPERIAL BANK, Lothbury, E.C.

CONDUCTING BOILER TESTS.

As a result of the confusion of methods of making tests, there is, says Mr. WILLIAM KENT, M.E., in an interesting paper read at the recent meeting of the American Society of Mechanical Engineers, a great lack of concordance of results in tests of the same boilers when made by different engineers. Reports of tests are frequently made, and sometimes published, in which the evaporation of water per pound of fuel is greater than is theoretically possible in a perfect boiler. Communications often appear in the engineering and industrial weekly press which show that there exists a serious doubt in many minds of the accuracy of boiler tests which are made, even by eminent engineers. The advisability of the adoption of a standard method of boiler testing has been felt abroad as well as in this country. Two societies in Germany—the Union of German Engineers, and the Central Union of Associations for the Care of Steam Boilers—recently appointed a joint committee, which drew up a code for the testing of steam boilers and engines, and although the German code is scarcely likely to find favour in America it is desirable that some code should be generally adopted. Mr. Kent frames a code in order that the several rules may be amended and put into such form that they will be likely to be adopted in practice. It is especially desirable that some standard method of starting and stopping the test should be adopted.

With regard to the method of starting and stopping tests, the conditions of the boiler and furnace should be in all respects the same at the end as at the beginning of a test. The steam pressure and the water level should be the same. The fire upon the grates should be the same in quantity and condition, and the walls, flues, &c., should be of the same temperature. It is difficult to secure uniformity in all of these conditions. Several methods to secure a near approximation to uniformity may be practised, of which four methods will here be considered.

1.—Start the test when the boiler is in full working order, with fires level on the grates and in ordinary working condition, and stop the test when fires are at the same height and in same condition as at the beginning. The most serious objection to this method is that it introduces an element of guesswork at the beginning and at the end of the test, both as to depth of fuel on the grate and its condition. It is difficult to estimate within an inch or two the depth of fuel on the grate with a dull fire and hard coal, but still more difficult when soft or flaming coal is used, and even if possible to estimate closely the quantity of fuel, it is not possible to judge correctly of its condition as to the amount of ash it contains or as to the amount of available heating power remaining in it. For this reason I think this method of starting and stopping a test should be rejected.

2.—When the fires have burned rather low, as for cleaning, remove rapidly all the fire from the grate, and clean the ashpit, and as quickly as possible start a fresh fire with weighed wood and coal, noting the time of starting the test at the instant the fire is lighted. At the end burn the fires low, as at the beginning, and remove the whole fire, cleaning the grates, and noting the end of the test at the time when the grates are cleaned, taking note of the water level and steam pressure, which should be, as nearly as possible, the same as at the beginning. In this method an error is introduced both at the beginning and at the end. While there is no error in the estimation of the quantity of fuel used, a serious portion is wasted both at the beginning and at the end of the test by radiation and by the passing of cold currents of air through the boiler. During the operation of drawing the fire the walls of the furnace become cooled, and during the first half hour, at least, of the test, while the fire is being lighted, the fires are not burning as under ordinary working conditions, and probably not with usual economy of the fuel. At the end of the test, before opening the doors to clean, the walls of the furnace are very much hotter than they were in the beginning of the test, and a large portion of the excess of heat is lost, not being absorbed by the boiler before the ending of the test, but radiated during the cleaning, absorbed by the cold air which rushes in at the time of cleaning, or remaining in the walls after the end of the test. The heat remaining in the hot fuel withdrawn is also lost. The errors in this method are all against the boiler.

3.—The fires are burned low, as in the second method, but the time of starting the test is taken to be the instant just before opening the doors to clean grates. The water level and steam pressure are noted, and all the water fed from this time to the end of the test is credited to the boiler. The fires are then rapidly cleaned and a fresh fire started with weighed wood and coal, which is charged to the boiler. At the end of the test the fires are burned low, as at the beginning, and at the end of the test is taken to be the time at which the doors are opened to remove the coal from the grates, the water level and the steam pressure being noted at the same time. In this method the error is that due to the cooling of the walls of the furnace by radiation and by cold currents of air during the cleaning of the grates at the beginning of the test, and also that due to imperfect combustion during the time of lighting the fresh fire, the error being always against the boiler.

In both the second and third methods the fire removed from the grates contains a large portion of unburned coal. This is sometimes picked out and its weight deducted from that of the coal fired, but such picking can never be accurately done, and the result always shows a higher than the true percentage of ash. If the boiler test is made for the purpose of determining the quality of the coal, as well as the efficiency of the boiler with such coal, the second and third methods are thus unfavourable to the coal, since there is more unburned coal removed from the grates than there would be in ordinary working conditions. In a test in which the capacity of the boiler is an essential feature to be determined, the second and third methods also give unfavourable results, since the total time of the test for at least half-an-hour, while the fresh fire is being lighted, and again when the fires are being burned down at the close, the boiler will not give its usual capacity.

4.—At the regular time for slicing and cleaning fires have them burnt rather low, as is usual before cleaning, and then thoroughly cleaned; note the amount of coal left on the grate as nearly as it can be estimated; note the pressure of steam and the height of the water level (which should be at the medium height to be carried throughout the test) at the same time, and note this time as the time of starting the test, and fresh coal which has been weighed should now be fired. The ashpits should be thoroughly cleaned at once after starting. Before the end of the test the fires should be burned low, just as before the start, and the fires cleaned in such a manner as to leave the same amount of fire, and in the same condition, on the grates as at the start. The water level and steam pressure should be brought to the same point as at the start, and the time of the ending of the test should be noted just before the fresh coal is fired. The principal error in this method is that of estimation of the quantity and condition of the fire upon the grates. The condition of the fire is made as nearly uniform as possible by burning down and cleaning, and the error in estimation of quantity is lessened by the fact that the quantity on the grate after cleaning is less than at any other time.

On account of the various errors and inconveniences necessarily attending the first, second, and third methods of making a test, the writer is inclined in favour of the fourth method. Recognising the existence of an error of uncertain quantity in the estimation of the quantity and condition of the fire upon the grate at the beginning and end of the test, it will always be less than the unavoidable error against the boiler due to the cleaning of the grates and lighting of fresh fires, as in the second and third methods, and less than the error in estimating the thickness and condition of fires, as in the first method. Where extreme accuracy is desirable, as in a competitive test between rival boiler-makers, the fourth method will be still preferred, but then a test should be made not less than 24 hours long, the working to be continuous during the whole time. The longer the test the less the percentage of error.

Although Mr. Kent's rules are, of course, in some parts inapplicable to this country (as in the fifth, wherein he mentions the particular coal that should be used), they will be valuable as explaining how some fixed general principles may be arrived at. His rules, omitting purely local matters, are:—

1.—Establish the good condition of the boiler. Have heating surface clean inside and out, grate bars and sides of furnace free from clinkers, dust and ashes removed from back connections, leaks in masonry stopped, and all obstructions to draft removed. See that the damper will open to full extent, and that it may be closed when desired. Test for leaks in masonry by firing a little smoky fuel and immediately closing damper. The smoke will then escape through the leaks.

2.—See that the blow-off valve is perfectly tight, and that there are no leaks of water from the boiler. During the test the blow-off pipe should remain exposed, and any water which escapes from it should be measured, or preferably it should be closed by a cap.

3.—See that there is no other feed-pipe connected with the boiler than the one which delivers the measured water, also that all connections with other boilers, either in water or steam spaces, are stopped with blind flanges. If an injector is used it must receive steam directly from the boiler being tested, and not from a steam-pipe or from any other boiler. All connections to or from the boiler should be broken except those in use during the test. Then if both pump and injector are attached to the boiler the one or other should be disconnected.

4.—See that the steam-pipe is so arranged that water of condensation cannot run back into the boiler. If the steam-pipe has such an inclination that the water of condensation from any portion of the steam-pipe system may run back into the boiler it must be trapped, so to prevent this water getting into the boiler without being measured.

5.—Have an understanding with the parties in whose interest the test is to be made as to the character of the coal to be used. The coal must be dry, or if wet a sample must be dried carefully, and a determination of the amount of moisture in the coal made, and the calculation of the results of the test corrected accordingly. Wherever possible the test should be made with standard coal of a known quality.

6.—In all important tests a sample of coal should be selected for chemical analysis.

7.—Establish the correctness of all apparatus used in the test for weighing and measuring. These are—1. Scales for weighing coal, ashes, and water.—2. Tanks or other meters for measuring water.—3. Thermometers and pyrometers for taking temperatures of air, steam, feed-water, waste gases, &c.—4. Pressure gauges, draft gauges, &c.

8.—Measure and record the dimensions, position, &c., of grate and heating surfaces, flues, chimneys, &c.

9.—Before beginning a test the boiler and chimney should be thoroughly heated to their usual working temperature. If the boiler is new it should be in continuous use at least a week before testing, so as to dry the mortar thoroughly and heat the walls.

With regard to starting and stopping a test, Mr. Kent says that a test should last at least 10 hours of continuous running, and 24 hours whenever practicable. The conditions of the boiler and furnace in all respects should be, as nearly as possible, the same at the end as at the beginning of the test. The steam pressure should be the same, the water level the same, the fire upon the grates should be the same in quantity and condition, and the walls, flues, &c., should be of the same temperature. To secure as near an approximation to exact uniformity as possible in conditions of the fire and in temperatures of walls and flues, the following method of starting and stopping a test should be adopted:—At the regular time for slicing and cleaning fires have them burnt rather low, as is usual before cleaning, and then thoroughly cleaned; note the amount of coal left on the grate as nearly as it can be estimated; note the pressure of steam and the height of the water level (which should be at the medium height to be carried throughout the test) at the same time, and note this time as the time of starting the test; and fresh coal, which has been weighed, should now be fired. The ashpits should be thoroughly cleaned at once after starting. Before the end of the test the fires should be burned low, just as before the start, and the fires cleaned in such a manner as to leave the same amount of fire, and in the same condition, on the grates as at the start. The water level and steam pressure should be brought to the same point as at the start, and the time of the ending of the test should be noted just before fresh coal is fired.

As to the mode of procedure during the test Mr. Kent deals with the matter under three heads—keeping the conditions uniform, keeping the records, and making pruning tests. With reference to the first he points out that the boiler should be run continuously, without stopping for meal times or for rise of pressure of steam due to increase demand for steam. The draft being adjusted by means of the damper to the rate of coal combustion desired before the test is begun, it should not be changed during the test. If the boiler is not connected to the same steam-pipe with other boilers, an extra outlet for steam should be provided, in case the pressure should rise to that at which the safety-valve is set, and in case of such rise of pressure it should be reduced to the desired point by opening the extra outlet, without checking the fires. If the boiler is connected to a main steam pipe with other boilers, the safety-valve on the boiler being tested should be set a few pounds higher than those of the other boilers, so that in case of a rise in pressure the other boilers may blow off, and the pressure be reduced by closing their dampers, allowing the damper of the boiler being tested to remain open, and firing as usual.

All the conditions should be kept as nearly uniform as possible, such as force of draught, pressure of steam, and height of water. The time of cleaning the fires will depend upon the character of the fuel, the rapidity of combustion and the kind of grates. When very good coal is used and the consumption is not too rapid, a 10 hour test may be run without any cleaning of the grates other than just before the beginning and just before the end of the test. But in case the grates have to be cleaned during the test the intervals between one cleaning and another should be uniform.

In keeping the records the coal should be weighed and delivered to the firemen in equal portions, each sufficient for about one hour's run, and a fresh portion should not be delivered until the previous one has all been fired. The time required to consume each portion should be noted, the time being recorded at the instant of firing the first of each new portion. At the same time the amount of water fed into the boiler should be accurately noted and recorded, including the height of the water in the boiler and the average temperature of feed and pressure of steam during the time. By thus recording the amount of water evaporated by successive portions of coal the record of the test may be divided into several divisions, if desired, at the end of the test, to discover the degrees of uniformity of combustion, evaporation, and economy at different stages of the test. When the pressure of steam and temperature of feed are nearly constant, half-hourly observations of each will be sufficient; but when there is considerable variation observations should be made more frequently, and the figures recorded should be the averages for each interval of time rather than the figures which are observed at the end of the interval.

In all tests in which accuracy of results is important calorimeter tests should be made of the percentage of moisture in the steam, or of the degree of superheating. At least 10 such tests should be made during the trial of the boiler, and the final records of the boiler test corrected according to the average results of the calorimeter tests. On account of the difficulty of securing accuracy in these tests the greatest care should be taken in the measurements of weights and temperatures. The thermometers should be accurate to within a tenth of a degree, the scales on which the condensed steam is weighed to within one-hundredth of a pound.

The final results should be tabulated upon a properly prepared blank, and should show:—1. Heating surface in square feet.—2. Grate surface (ft. in. long by ft. in. wide).—3. Ratio of heating to grate surface.—4. Kind of fuel used.—5. Duration of test.—6. Average steam pressure in lbs.—7. Average temperature of feed.—8. Pounds of coal burned.—9. Pounds of refuse.—10. Pounds of combustible.—11: Per cent. of refuse.—12. Coal burned per square foot grate per hour in lbs.—13. Total water evaporated.—14. Water evaporated per hour in lbs.—15. Water evaporated per square foot heating surface per hour in lbs.—16. Water evaporated per lb. coal, actual conditions in lbs.—17. Water evaporated per lb. combustible actual conditions

in lbs.—18. Water evaporated per lb. coal, from and at 212° in lbs.—19. Water evaporated per lb. combustible, from and at 212° in lbs.—20. Quality of steam (moisture or superheating).—21. Rated horse-power (builders' rating).—22. Horse-power developed at 30 lbs. of water evaporated per hour from and at 212°.—23. Per cent. above (or below) rated capacity.—24. Temperature of boiler room.—25. Temperature of flue gases.—26. Force of draft in inches of water. The customary method of rating horse-power is 30 lbs. of water per horse-power per hour from a feed-water temperature of 212° into steam at 70 lbs. pressure above the atmosphere, which is equal to 30·985 lbs. from feed at 212° into steam of the same temperature. The writer prefers the calculations both of economy and horse-power to be made on the basis of evaporation from and at 212°, for the sake both of uniformity and of convenience in calculation. As the International Patent Law Convention will bring the metric system into general use among engineers and working men through the civilised world, it would probably be preferable to arrange that the record should be in all cases in centimetres, kilogrammes, and centigrade degrees, so that the full advantage of the proposed uniformity shall be secured.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

PETER CROOK (Limited).—Capital 80,000*l.*, in shares of 10*l.* To acquire certain mills situated at Bolton, and carry on a cotton manufacturing business. The subscribers (who take one share each) are:—P. Crook, Bolton; T. Crook, Bolton; J. Harper, Bolton; G. Firth, Bolton; E. Haslam, Longworth; G. Hopwood, Rainworth; W. T. Horrocks, Bolton.

THE FROCHNEOL MERTHYR COLLIERY COMPANY (Limited).—Capital 50,000*l.*, in shares of 1*l.* To adopt and carry into effect a certain agreement for the purpose of carrying on the business of colliery proprietors and pottery works proprietors, coal miners, coke and brick, and tile manufacturers, &c. The subscribers (who take one share each) are:—E. T. Hollins, 23, Chapter-street, accountant; T. F. Wood, 57, Tachbrook-street, gentleman; G. E. Hooke, 3, Crown-court, sharedealer; W. Walmaley, Whetstone, contractor; R. C. Sharland, 67, Woodland-street, accountant; G. Levick, Palace Chambers, C.E.; J. H. Wyatt, 108, Bishopsgate-street, sharedealer.

THE ROCHDALE BOROUGH COLLIERY COMPANY (Limited).—Capital 10,000*l.*, in shares of 10*l.* To carry on the usual business of colliery proprietors, coal merchants, and coke manufacturers, in all their respective branches. The subscribers (who take one share each) are:—J. Cross, Bury, coal merchant; W. Grundridge, Rochdale, timber merchant; W. Sanderson, Bury, agent; J. J. Lord, Rochdale, coal proprietor; H. F. Hurst, Rochdale, estate agent; O. Murch, Rochdale, solicitor; J. Barlow, Rochdale, boiler maker.

THE TRAVANCORE PLANTATION COMPANY (Limited).—Capital 17,500*l.*, in shares of 10*l.* To purchase, in order to cultivate, manage, develop, and improve certain coffee estates situated in India. The subscribers (who take one share each) are:—J. A. Miller, Percy Circus; S. P. Morris, 49, Essex-road; J. Miller, 53, Basinghall-street; W. B. Jones, Highgate; F. J. Lovesay, 17, Elmington-road; F. F. G. Archer, 310, Southwark Park-road; A. Stewart, Perth.

THE COMMERCIAL TRAVELLERS' CLUBS (Limited).—Capital 250,000*l.*, in shares of 1*l.* To establish and maintain club-houses in various cities and towns in the United Kingdom. The subscribers are:—W. Knighton, Sydenham, 100; J. J. Bennett, 28, St. Swinburn-lane, 100; H. E. Harper, Billiter House, 1; C. A. Bury, Seething-lane, 100; R. Johnston, 3, Kensington Hall-terrace, 100; L. W. Nell, Forest Hill, 100; W. A. Lee, 1, Gresham Buildings, 1.

THE PARLIAMENTARY AVENUE COMPANY (Limited).—Capital 200,000*l.*, in shares of 20*l.* To acquire certain sites and properties in Westminster, for the purpose of erecting and maintaining buildings, chambers, offices, &c. The subscribers (who take one share each) are:—R. C. Ponsonby, 105, St. George's-road; G. Edwards, Savoy; T. D. Leaver, 57, Lincoln's Inn-fields; G. Readdy, Liverpool; A. Attewell, Rhondelland; J. C. Vandy, Liverpool; E. L. Lewis, Liverpool.

RAYNER AND COMPANY (Limited).—Capital 30,000*l.*, in shares of 1*l.* To establish and carry on the business of syrups, sauces, oils, agitated, and other waters manufacturers. The subscribers are:—J. Sellers, 1, Sutherland Villas, 2500; W. E. Millard, 32, Brunswick square, 2500; J. B. Wild, 34, Ludgate Hill, 1; B. Coway, 10, Westbourne Villas, 10; A. Webb, Clapton, 20; J. Butcher, Gannarsbury, 5; H. Marks, 20, Queen-street.

THE TIBAGY DREDGING COMPANY (Limited).—Capital 20,000*l.*, in shares of 50*l.* To adopt and carry into effect a certain agreement for the purpose of carrying on generally the business of gold and diamond diggers, dredgers, and miners, and to search for, extract, get, buy, polish, prepare, sell, and deal in gold, diamonds, and other precious stones and metals, and all operations connected with the business of miners and metallurgists. The subscribers are:—E. W. Streeter, 18, New Bond-street, diamond merchant, 20; G. Moffatt, 6, Lime-street, merchant, 10; K. McLean, 39, Lombard-street, merchant, 25; G. S. Streeter, 18, New Bond-street, diamond merchant, 1; C. Ball, 9, Bush-lane, C.E., 5; A. Taaffe, 7, Chepstow-place, M.E., 1; W. B. Ball, Plumstead, M.E., 1.

THE EMPIRE FIRE INSURANCE ASSOCIATION (Limited).—Capital 1,000,000*l.*, in shares of 10*l.* The subscribers (who take one share each) are:—A. S. Phillips, Crouch Hill; H. Green, Brixton; H. Smith, West Brompton; A. Vaughan, Dalston; J. Williams, 14, Harpur-street; F. Hadley, 14, Castle-street; J. T. Hadley, Clapham.

THE ABERGAVENNY FINANCIAL COMPANY (Limited).—Capital 10,000*l.*, in shares of 10*l.* A financial and discounting business generally. The subscribers are:—J. O. Marsh, Abergavenny, 10; W. Williams, Abergavenny, 10; T. Tucker, Abergavenny, 10; J. G. Thomas, Abergavenny, 10; W. Davis, Abergavenny, 10; G. Pithard, Abergavenny, 10; T. H. Tomkins, Abergavenny, 5.

THE SOUTH DEVON HYDRO-SANATORIUM (Limited).—Capital 35,000*l.*, in shares of 7*l.* To erect, maintain, and carry on a hydro-pathic establishment near Teignmouth, Devonshire. The subscribers (who take one share each) are:—F. J. Clare, Maryland Point; A. Nye, Crouch Hill; C. W. Attmore, Hackney; S. W. A. Burden, Loughton; A. H. Thane, 71, Queen-street; G. P. Wicks, Romford; C. H. Scriven, 6, Hayes-place.

VICTOR ENGINEERING COMPANY (Limited).—Capital, 50,000*l.*, in shares of 5*l.* To manufacture and vend gas-engines and lubricators, and generally to carry on an engineering business in connection with certain patents. The subscribers (who take one share each) are:—J. C. Baker, Liverpool; O. Bowen, Liverpool; E. G. Westfield, Liverpool; J. Gallagher, Liverpool; E. J. Gill, Liverpool; H. D. Williams, Southport; G. L. Miller, Liverpool; W. H. Fleming, Liverpool.

W. P. GRIFFITH AND SONS (Limited).—Capital, 40,000*l.*, in shares of 10*l.* To acquire and carry on a business of printers and stationers established at Prujean-square, Old Bailey, London. The subscribers (who take one share each) are:—W. P. Griffith, Prujean-square; T. C. Griffith, Prujean-square; H. Griffith, Prujean-square; F. Griffith, Prujean-square; W. J. Field, 67, Akerman-road; F. J. Davis, 9, Manley-terrace; R. J. Davis, 9, Manley-terrace; W. Pantor, Penge.

THE PATENT SLATE-BRICK AND SANITARY TUBE COMPANY (Limited).—Capital 10,000*l.*, in shares of 1*l.* The business of quarry men, tilemakers, brickmakers, potters, and manufacturers in slate in connection with certain patents. The subscribers (who take 30 shares each) are:—C. T. Steward, Bailey's Hotel; K. Barr, Brighton; T. J. W. Flint, Canterbury; G. A. Rogers, Carmarthen; C. H. Palliser, Wallington; A. J. Ward, West Kensington; H. N. Bartlett, Upper Tooting.

THE PILGRIM'S REST EXTENSION (TRANSVAAL) GOLD FIELDS (Limited).—Capital 150,000*l.*, in shares of 1*l.* To acquire, on the terms of a certain agreement, two concessions over properties known as "New York" and "Peach Tree," situated in Lydenburg, South Africa, for the purpose of fully exploring and developing such properties, and carrying on in all branches all operations connected with a gold mining company. The subscribers (who take one share each) are:—H. O. Lewis, 1, Lancaster Gate, J.P.; Lord B. Montagu, 41, Queen's Gate, P.C.; A. Armstrong, The Albany, K.O.B.; H. M.

le Champion, 64, Redcliffe-square, Lieut.-col.; B. Revett, Ealing, director; F. P. Bouvier, 30, Langridge-road, Rear-Admiral; O. W. Kirk, 148, St. Paul's-road, clerk. The following gentlemen will join the first board of directors:—Lord R. Montagu, Admiral Bouvier, Sir A. Armstrong, and Col. H. M. le Champion. Each director will have to qualify in 100 shares.

THE CITY AND SUBURBAN BANK (Limited). Capital 50,000*l.*, in shares of 1*l.* To carry on in London and by branches a banking business. The subscribers (who take one share each) are—J. P. Healy, Balgic Chambers; C. W. P. Overend, 6, South-square; F. Parker, Radon; E. Errington, 275, Strand; S. J. Cheshire, 3, Adelphi-terrace; G. J. Andrews, 82, Frankford-terrace; A. S. Moon, 26, Turistock-street.

THE SHIP-PROPELLING MOTOR SYNDICATE (Limited).—Capital 20,000*l.*, in shares of 5*l.* The business, in connection with certain patents, of mechanical and chemical engineers, manufacturers of engines, workers and dealers in electricity, motive-power and light, &c. The subscribers (who take one share each) are—C. E. P. Gordon, 40, St. Luke's-road; G. Milburn, Edinburgh; R. Laing, Newcastle-on-Tyne; S. W. Smith, 66, Gresham House; H. W. Rallins, 11, Wellington-street; C. H. Hoskins, Lower Clapton; W. Rivett, Leyton.

THE COMFORTH PATENT SMOKE-CONSUMING APPARATUS COMPANY (Limited).—Capital 20,000*l.*, in shares of 5*l.* To purchase an iron foundry situated at Birmingham, and to continue the business in connection therewith. The subscribers are—E. T. Burton, Birmingham, 1; J. K. Lavis, 41, Prince's-square, 5; A. T. Rushton, Birmingham, 1; C. T. Powell, Handsworth, 5; T. Hands, Birmingham, 1; J. A. Cooke, Birmingham, 1; J. J. Rugg, Birmingham, 1.

CHARLES BURRELL AND SONS (Limited).—Capital 100,000*l.*, in shares of 10*l.* To purchase the St. Nicholas Works, belonging to the forenamed firm, and situated in Thetford, Norfolk, and to continue the business of agricultural and mechanical engineers, iron founders, ship and boat builders, &c. The subscribers (who take one share each) are—C. Burrell, sen., Thetford; C. Burrell, jun., Thetford; R. G. Burrell, Thetford; F. J. Burrell, Thetford; H. Vasseur, Founders' Hall; B. P. Bromhead, Sheffield; J. A. Joselyne, 28, King-street.

THE SHAFESBURY HALL AND GYMNASIUM COMPANY (Limited).—Capital 6000*l.*, in shares of 1*l.* To establish and maintain at Bournemouth a public hall, gymnasium, and recreation rooms. The subscribers are—H. L. Rivett, Bournemouth, 200; Earl Cairns, Bournemouth, 500; W. H. Dawson, Bournemouth, 200; T. H. Hogue, Bournemouth, 50; R. H. C. Drury-Low, Bournemouth, 15; T. H. Harkinson, Bournemouth, 20; R. Colman, Bournemouth, 10.

THE GARDEN REACH SPINNING AND MANUFACTURING COMPANY (Limited).—Capital 250,000*l.*, in shares of 25*l.* To acquire certain mills on the Hooghly and in the vicinity of Calcutta, for the purpose of carrying on the business of spinning, weaving, and manufacturing cotton, jute, and other fibrous substances. The subscribers (who take one share each) are—E. Lees, 102, Lancaster Gate; W. Mackinnon, Argyle; P. Mackinnon, Glasgow; D. Mackinnon, Glasgow; T. M. Russell, Calcutta; S. MacLeay, 7, Lothbury; A. Toms, 17, Cornwall-road.

Meetings of Public Companies.

COLONIAL BANK.

The ninety-third half-yearly general meeting of shareholders was held at the Bank House, Bishopgate-street Within, on Thursday, Mr. J. Q. HENRIQUES in the chair.

Mr. JAMES CLARK (the secretary) read the notice calling the meeting, and the following report of the directors:—
The directors now submit to the proprietors the usual statement of the debts and assets of the Corporation on Dec. 31, as follows:—

DEBTS.			
Circulation	£ 456,732	3	4
Deposits, bills payable, and other liabilities	3,569,282	5	10
Paid up capital	800,000	0	0
Reserve fund	117,000	0	0
Balance of profit for last half-year	1,931	8	7
Net profit for the half-year	35,125	4	7
Total	£4,780,071	2	4
ASSETS.			
Specie	£ 294,727	12	10
Due to the bank in the colonies on bills discounted and purchased, including those past due, &c.	1,573,005	7	3
Due to the bank in the colonies on current accounts	43,292	12	4
Due to the bank in London on bills remitted, cash at bankers, &c.	2,859,045	9	11
Bank premises and furniture in London and in the colonies	10,000	0	0
Total	£4,780,071	2	4

The foregoing statement of accounts shows that there has been no falling-off in the business of the bank as compared with the corresponding period of 1882, but the directors having as usual provided for all bad and doubtful debts up to the present time, and there having been several failures recently both in the West Indies and in this country, have deducted from the profits a sum sufficient to provide for all probable losses on these accounts. Consequently the net profits for Dec. 31 last are much reduced, and only permit the declaration of a dividend of 6 per cent. for the half-year, leaving the reserve fund intact at 117,000*l.*

The directors deeply regret that the transactions of the bank with the firm of P. W. Thomas, Sons, and Co., have resulted in loss. These had extended over a period of many years, during which they had been satisfactory. At the time of the failure the bank had a considerable sum on loan with them, covered by securities, part of which have been realised, but some are the subject of litigation. In the meanwhile the directors have the satisfaction of assuring the proprietors that the ample loss has been made for all loss on this account.

The reports received from the branches during the current half-year show that the business is well maintained, but in view of the extreme depression in the produce markets, the directors have instructed their managers to exercise great caution.

The CHAIRMAN said he had to state that owing to continued indisposition Mr. T. D. Hill had found it necessary to resign the chair, which he filled for so many years to the advantage and interest of the bank. He had to ask their indulgence whilst he laid before them the loss which the bank had sustained in their dealings with P. W. Thomas and Sons, stock brokers, with whom the bank had had transactions extending of many years. The managing partner of that firm, Mr. Blakeway, by fraud and deception, succeeded in obtaining from the bank the funds thus raised carried on extensive transactions on the Stock Exchange. Those transactions were unknown to the outside public. Through those transactions considerable losses had been sustained, and his duty was to deal with the heavy loss which the bank had suffered. On the failure of P. W. Thomas and Sons the bank proceeded to realise, and did realise a considerable amount of its securities, but a large amount it had been impossible to realise, because the title of the bank to the securities was disputed by the owners of which the bank had no doubt. It was his duty to call attention to the means to be taken to deal with the loss. It had not been possible to estimate the amount of the loss, but the directors could, however, without reserve, assure the shareholders that the loss, to whatever extent it might be, had been fully provided for in the accounts now presented. There would be no necessity for having again to refer to this catastrophe, unless it be of an encouraging nature, as regarded recoveries beyond the estimates, which had been carefully gone into. The losses, as far as they had been ascertained, had been entirely provided for. There was a debit balance of about 36,000*l.*, against which the bank held securities to a far larger amount; but, should they be disappointed in the estimate, the directors had made a certain reserve to cover all the 36,000*l.* Those estimates had been determined by a special committee of the directors, who carefully watched over all matters connected with this misadventure, and the directors were enabled to provide for all this loss without any encroachment upon the reserve fund, which still stood at 117,000*l.* The directors were under the necessity, from causes not connected with that loss, to deprive the shareholders of the extraordinary dividend, and to declare 6 per cent. for the half-year. The accounts were made up to Dec. 31 last, and he was able to report that the profits of the bank for the current half-year were well maintained. It was his duty to call attention to the great depression of sugar and other colonial produce; beyond the ordinary drawback which had been frequently alluded to with regard to the foreign bounty question, they had had to contend against the present unsettled state of the market in the United States, and also the low prices in this country. The directors had received intimation of several failures, but the losses likely to be sustained by those failures, so far as the directors had been able to ascertain, had been provided for in the accounts now in the hands of the shareholders. In conclusion, the CHAIRMAN moved the reception and adoption of the report, and said he should be happy to give any information consistent with the interests of the bank.—Mr. FLETCHER (deputy-chairman) seconded the motion.

The CHAIRMAN, in reply to Mr. SOLOMON, said that the accounts only came up to Dec. 31, but all losses had been allowed for in the figures given in the report which had been read.

Mr. SOLOMON asked how it was that the bank retained the rate of interest at Jamaica at 8 per cent., whilst in other colonies they had reduced it to 6 per cent.—The CHAIRMAN said this was a matter which had been mooted before, and the directors still had it under consideration whether they should make any alteration. That was a matter which the directors would determine hereafter.

Dr. DRYSDALE said he was much pleased with the report, which he should heartily support. He had heard uncomfortable rumours about the amount of loss which the bank had sustained through the Blakeway frauds, and the clear and straightforward statement of the CHAIRMAN was very reassuring.

The resolution for the adoption of the report and accounts was then put and carried unanimously.

On the motion of the CHAIRMAN, seconded by Mr. FLETCHER, a dividend of 6 per cent. was declared for the half-year ended Dec. 31 last, payable on and after July 5 free of income tax.

The CHAIRMAN said he had to announce the resignation of Admiral Which (who had since died), as a director, and in his place he proposed that Mr. Neville Lubbock be appointed a director.

Mr. John James Cater was then elected auditor in the place of Mr. Neville Lubbock, elected on the board.

On the motion of Dr. DRYSDALE, seconded by Mr. SOLOMON, votes of thanks were passed to the Chairman, directors and staff, and the meeting broke up.

PORT PHILLIP AND COLONIAL GOLD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the offices of the company, Moorgate-street, on Wednesday; in the absence, through indisposition, of Mr. Thomson, the Chairman, the chair was occupied by Mr. J. R. MACDONNELL.

The meeting was called for the purpose of reducing the nominal amount of the shares, and at the same time reducing the liability from 2*l.* to 1*l.* 5*s.* per share.

The SECRETARY read the notice convening the meeting.

The CHAIRMAN said that at the last general meeting held on Jan. 31 last, the directors were instructed by the meeting to take the earliest possible steps to reduce the liability from 2*l.* to 1*l.* 5*s.* per share. This was the earliest date at which it could be done, as the directors had to obtain certain documents and assents from Australia, and from Mr. Bland. The resolution which he had to move was:—“That in exercise of the authority for this purpose conferred by the regulations of this company, and subject to the provisions and requirements of the Companies Acts, 1867 and 1877, the nominal capital of this company, now consisting of 200,000*l.*, divided into 100,000 shares of the nominal value of 2*l.* each, of which 97,315 have been duly issued and registered, and 185 are issued but unregistered, and 1*l.* and no more has been called up and paid on each such share so issued, shall be, and the same is, hereby reduced to a nominal capital of 125,000*l.*, divided into 100,000 shares of the nominal value of 1*l.* 5*s.* each, of which last-mentioned 100,000 shares of the nominal value of 1*l.* 5*s.* each, 97,315 shall be registered respectively in the names of the now-registered holders respectively of the said 97,315 present shares of 2*l.* each. In lieu of such last-mentioned shares respectively, and on each of which 97,315 new shares of 1*l.* 5*s.*, so as to be registered as aforesaid, the sum of 1*l.* 5*s.* per share shall be deemed to be paid, and of which said 100,000 new shares, the remaining 2855 shall, or may, be issued as shares of the nominal value of 1*l.* 5*s.* each, subject to any of such last-mentioned shares in respect of which there is, or may be any scrip outstanding, entitling the scrip-holders to have any sum allowed as paid up thereon to the rights of such holders respectively.” That was the special business of the meeting, but perhaps the shareholders would like to hear some extracts from Mr. Bland's last letter.

The extracts, which were of an encouraging character, were then read.

The CHAIRMAN, referring to the paragraph in the letter, said for some months the proprietors of the property had waited their royalties. It was impossible for the company to pay at the time Mr. Bland had applied for an extension of time, but this had been refused, and the proprietors stated that they must go back to the sliding-scale as before; but Mr. Bland was in negotiation with them on the subject, and was not without hopes that he might still induce them to waive their royalties. The company were willing to pay royalty on net profits, but they could not afford to pay dead rent. The present board was under a pledge, given some years ago, not to seriously impair the reserve fund, and that pledge the directors considered themselves bound to observe until the directors called the shareholders together, when the time arrived to take the subject into consideration. There was still 60,000*l.* of reserve fund. It would be satisfactory to the shareholders to know that the loss during the past seven months had been practically nil, having only amounted to 33*l.*, which was of course exclusive of London expenses. It would be a question to consider shortly whether when the capital was reduced it might not be desirable, and if necessary to touch the reserve fund in order to develop the mine. He merely threw out the suggestion now, as it was not competent for the present meeting to come to any definite decision on the subject.

Mr. W. RUSSELL CROWE seconded the motion.

Mr. BLADON said he thought there would not be a dissentient voice regarding the resolution which the Chairman had proposed. The reduction of 5*s.* per share ought to beneficially affect the shares, which could scarcely be expected to rise with a liability of 1*l.* per share hanging over them. When the capital was reduced he thought the directors would do well to show a little more courage in the mining operations, and adopt a bolder course, and, if necessary, touch the reserve fund, in order to produce better results. If that course were adopted his confidence in the results would be satisfactory.

After a very short discussion the resolution was put to the meeting, and carried unanimously.

The next business was the re-election of auditors, and the following gentlemen were elected, namely, Mr. Fred. Pryce, and Mr. Wm. Russell Crowe.

An informal discussion ensued regarding the mode of dealing with the forged shares which were issued by the late secretary. The point discussed was whether the appeal which has been lodged against the recent decision of the Court should be appealed against, or whether the matter should be settled without further litigation. In the end two gentlemen, Mr. Price and Mr. Bladon, were appointed (with the full concurrence of the board) to consult with the directors as to the most advisable course to be adopted in the matter.

A vote of thanks to the Chairman and directors closed the proceedings.

RUBY AND DUNDERBERG CONSOLIDATED MINING COMPANY.

The fourth ordinary half-yearly meeting of shareholders was held at the Cannon-street Hotel, on Tuesday.

Mr. GEORGE HEIRON (the Chairman) presiding.

Mr. J. FORSTER HAMILTON (the secretary) read the notice calling the meeting. The report was taken as read.

The CHAIRMAN said that the principal difficulties which they had to contend against during the last six months had been the severe winter, and the re-arrangement of the miners' wages. It had been acknowledged by everyone who knew anything of America that such a severe winter had scarcely ever been known—nothing but snow, the roads blocked up, and the miners prevented from carrying on their usual vocation, and during the six months scarcely any work of a satisfactory nature could be done. At the last meeting the directors were pressed to reduce, as much as possible, the expenses at the mine; the board considered the question very carefully, and through the perseverance of Mr. Rickard, had succeeded in effecting reductions in salaries which would lead to a saving of something like 400*l.* or 500*l.* a year. They had not only had those two difficulties to contend with, but for a certain period the works had to be closed; therefore, looking at all these circumstances, he thought things were not so bad as they might appear in the first instance. With regard to Home Ticket Mine, the report stated:—“Work at this mine has continued, and it is being steadily developed; the incline has now been sunk altogether 250 feet from the surface, and there are five levels branching off at various depths from the incline, on all of which work has been done. The more or less unfortunate the greater part of the ore extracted is rather low grade, though now and then a rich parcel is met with. They had always hoped they would find not only a large body of ore in the Home Ticket, and they had still every reason to believe that it would be found. In fact it had been found, but the quality of the ore was lower than was hoped for. Had it been otherwise the company would have been in a better financial position than it had been. With regard to the Dunderberg Mine, the report stated:—“This mine has been worked entirely on tribute, from 25 to 35 men being generally at work there. The severe winter has interfered much with the men, who very often have been quite unable to get to the mine. The results, however, to the company have been fairly satisfactory.” There was a report from Mr. Rickard, which was perfectly satisfactory, calling attention to some parts of the mine, and he hoped the discoveries already made would lead up to something more important. They next came to the Lord Byron Mine, which at the present time was the principal one they had to play, and the directors had great faith that before very long that mine would turn out something very satisfactory. Regarding the Lord Byron Mine the report stated:—“The tunnel at this mine has been continuously worked. In the last report the directors mentioned that 421 ft. had been completed; the ground generally has proved very hard, thus much retarding the work. At about 50 ft. from the entrance a seam of good ore was passed through, which gradually increased in size till it was 5 ft. wide by 8 ft. long. According to assays taken on the spot it appeared high grade (£80 to £90 a ton) at first, but fell off in quality as it was followed. To connect the tunnel with the cave at the bottom of the Lord Byron shaft about 60 ft. more (560 ft. altogether) had to be driven. This is now nearly completed, and it is thought good ore will be found in this cave, of which the seam passed through in the tunnel is probably an offshoot. The report was printed, and the directors had another communication from the mine, which was very satisfactory indeed. They had entered the “cave,” and had found boulders there, and other debris, which would have to be removed before they could ascertain the value, but from the report, which the secretary would read, they would come to the conclusion that it was most satisfactory on the whole mine. At the other mines very little was being done. As regarded the slag and speis, several enquiries had been made for purchasing the company's slag heap, but the manager had refused all proposals for the present, as it was considered when the other slag heaps at Eureka were used up it would prove a valuable asset. The constant use of slag was improved in smelting works, whereby a large percentage of the precious metals was secured, were likely also to increase the value of this article; consequently the longer it was retained the more valuable it would be to the company. The directors in their report went on to state that for the first six months of the financial year (October to March) the receipts at Eureka did not cover the expenses, but this deficiency was now being rapidly worked off, and with the summer and autumn months before them, and fair prospects at the three mines now being worked, they trusted some good profits would be made, so that in December they might be able to lay before the shareholders a satisfactory statement of accounts for the whole year. As regarded the returns from Oct. 1 to April 30 about 1900 tons of ore were extracted from the Home Ticket, which realised about £20,000, and 350 tons from the Dunderberg, which realised £3500, and £4375 had been received from the ore shipped on tribute during May and June. It was satisfactory to know that the expenses had been considerably smaller, and that the output had increased. Every effort was being made to reach some large body of ore, and the shareholders must wait with patience, and he hoped they would be rewarded for their patience.

The SECRETARY then read the following reports which had been received from the mine, dated respectively June 4 and June 9.

June 4.—Home Ticket: The ore bodies in this mine have not been so productive as was expected, but have been continuous from the surface downwards to a point about 10 ft. below the fourth level, where a sudden change took place in

the quality of the ore, which is not an unusual occurrence in the past history of this mine. A winze is now being sunk below the fourth level in a large mass of low grade ore (of no value) with occasional small bunches of good ore. Although there is very little ore in sight, as there have been no fresh discoveries, I consider the prospects in the bottom of the winze very flattering, and may develop into a good paying ore body at any moment. The present depth of the winze is 35 ft., about 15 ft. more will connect with the cross-cut from the bottom level, which is already within a few feet of the point where the winze will come through. Work had to be discontinued in the bottom level for lack of ventilation.

The tributers who have been working have made so small wages that they refused to continue on the same rates. The earnings of the men for a period of three months was not over \$1.50 per diem, consequently better conditions had to be given, so that they might be able to earn a living, and be encouraged to do some additional prospecting, and I hope that we will be able to wire an improvement in time for your meeting.

Dunderberg: There are 24 tributers at work at various points from the surface down to the 500 ft. level, there are two places in the mine where the prospects are favourable for developing something of value, one is between the 400 and 500 ft. levels, where the ore is from 2 to 4 feet in width, and is going into new ground; there has been considerable prospecting done on the 500 ft. level by the tributers, who are trying to find the continuation of this orebody, but so far without success, although the prospects are favourable. The other point of interest is in the west slope, above the 500 ft. level, where the ore is from two to 3 feet in width and about 10 ft. in length; this is also going up into new ground, and may develop into an orebody.

Lord Byron: The drift from the tunnel has been connected with the cave today; the tunnel level is about 25 ft. above the bottom of the cave; work will be commenced immediately in the bottom of same, where there is a large quantity of rock and debris to be removed before we can ascertain what there really is in the bottom; there is some good ore already exposed in the end of the cave, as low down as it is possible to go at present. The ore body above the tunnel is improving, the ore seems to be of better quality than any heretofore extracted; the small seams on which we have been working are in my opinion only feeders to a main body which terminated in the cave. This would give us reason to expect ore below the debris in the bottom of the cave, which will be ascertained in a very short time.

Eldorado: The lessees are still at work, and are applying for a renewal of the lease, which will be granted on the same terms as the former one.

June 9.—Lord Byron: Before clearing out the bottom of the cave we find that it will be necessary to drift about 15 ft. further on the north side of it, in order to reach a suitable place to erect a windlass, otherwise it would require two windlasses to do the work. This is owing to a change in the course of the cave near the bottom. The tributers are extracting some fair grade ore from the slope, which is now up about 50 ft. above the tunnel level. They have also commenced work in the bottom of the tunnel, at the point where the ore was first discovered, and a large cave was broken into yesterday, which extends down about 40 feet, is fully 30 feet in length, and from 6 to 10 feet wide. The bottom is full of large boulders of limestone covered with beautiful lime crystals. Some of the boulders have been removed, and good ore found underneath. Whether the ore extends the whole length of the cave or not cannot be ascertained until considerable more work is done. I consider this a very important discovery. We have had a survey made through some other old workings which were badly caved in and filled with waste material. It turns out that these workings extend down to within 40 ft. of the tunnel level; but to make the connection it will be necessary to continue the tunnel a further distance of 117 ft., which work Mr. Rickard recommends to be commenced at once, as the showing in these workings appears to justify the outlay.—Capt. KERMEK.

The CHAIRMAN said that, having had those reports read, he would leave the shareholders to form their own opinion as to the prospect of the mine, and he could not help thinking that eventually there would be some very rich results, now that they had got to this cave. Another mine which had struck a similar cave had realised millions of dollars for the shareholders, and he did not see why this company should not have as good an opportunity as any other company of striking a good body of ore. The finances had been low in consequence of the depression in the metal trade, and if a rise took place in the lead market, the company would be in a much better position than now. In conclusion the CHAIRMAN moved the reception and adoption of the report and accounts.

Lieut.-Gen. J. W. RUSSELL D'OLIVER seconded the motion.

Mr. BLADON asked what length of time it would take to clear the debris out of the mine, and when might the shareholders expect some definite results to be obtained? It really seemed that they had now obtained a certain position, from which something good might be obtained, and he hoped that before they met again the results obtained would justify his expectations.

Mr. STUART said that they had already decided what was in the bottom of the cave, as it was yielding \$120 per ton.

The CHAIRMAN said he endorsed what Mr. Bladon had said; he did not think they would have long to wait to know the results from the cave, and it might be that the results might be known within a month or two, but it was impossible to say.

Mr. BERNARD said he knew the Eureka and Richmond, and other mines in the locality, and he had no doubt, from the description given by Mr. Rickard, that they had a body of ore in the cave. The indications were similar to those in Eureka, which proved very rich. He considered the latest reports the best which had ever been received regarding this property.

The resolution for the adoption of the report and accounts was then put and carried.

On the motion of Mr. SKELL, seconded by Mr. BLADON, votes of thanks were passed to the Chairman, the directors, the officers abroad, and the secretary here, and the meeting terminated.

NORTH MEXICAN SILVER MINING COMPANY.

The statutory meeting of shareholders was held at the offices of the company, St. Helen's-place, on June 27.

The Hon. H. ROPER CURZON in the chair.

Mr. F. W. PORTER (the secretary) read the notice convening the meeting, and the following report of the directors was taken as read:

In convening a general meeting at the early stage required by the Act of Parliament there is necessarily but little to report respecting the operations of the company. The directors in raising money from the public, laid down the proposition that those subscribing the capital should be repaid the whole of that capital, with interest, before the vendor could make any profit, thereby obtaining a solid guarantee from him that the mines showed unusual prospects of success. To carry out this they issued debentures, to give the public subscribing a first charge on the property, and to prevent the vendor realising a profit by the sale of his shares, which is too often done when properties are sold for shares alone. This effectually precludes him making any profit unless through the success of his mines, whilst the public supplying capital, until they get it wholly repaid, are entitled to the property upon which their money is laid out, the vendor being placed in the position of a mortgagee. The directors take this means of recording their opinion that the company has a solid and substantial property, holding out every prospect of becoming a successful enterprise. The policy of the board will be not to try any new processes or experimental machinery, but to follow in the beaten track of that which has proved successful. In this respect they have the experience of the company working the immediately adjoining mine (principally controlled by Messrs. Kidder, Peabody, and Co.) That company is so satisfied with the results thus far achieved that they are doubling their machinery. The directors consequently have obtained estimates for this company from the firm who are supplying the new machinery to the before-named company, which naturally will include all improvements experienced by them. These estimates show that the capital required for the work is amply sufficient, if judiciously employed, to erect and set the machinery to work, from which period silver will be produced to meet further expenses. Allowing a margin on the time required by this firm, the machinery will be at work within six months from the order being given. The directors propose to place the erection of the machinery in the hands of a mechanical engineer recommended by the firm supplying it. Being accustomed to its erection he will, for the reputation of that firm, carry out all details in the most economical, efficient, and satisfactory manner. This system has been found the most conducive to success in the Western States of America, and that adopted by most of the largest and successful companies. Your directors, immediately they saw their way to the subscription of sufficient debenture capital to proceed with the company, took the necessary steps to select a suitable superintendent, and for that purpose advertisements were inserted in the various newspapers, and numerous applicants have been interviewed. Up to the present the directors have made no selection, being determined to leave no stone unturned to secure the appointment of the most efficient and suitable man that can be found than which nothing is more important to the company. In accordance with the stipulation in the prospectus, a sufficient amount having been invested in Consols, in the names of trustees, to pay 7 per cent. interest for the first year on all the debentures allotted on the terms of that prospectus, the necessity for continuing the deposit of 400*l.* has ceased. Before allotting the debentures the directors laid the title deeds of the vendor before Mr. Leonidas Hamilton, author of the important work on “Mexican Mining Law Annotated,” who happened to be in England, and he advised the board that the titles appeared to be in perfect order according to the laws of Mexico. Before finally completing the purchase the directors propose to have the titles further examined on the spot. No doubt that the company is an established undertaking, with sufficient capital subscribed to start its machinery, it becomes a question for the present debenture-holders whether the board should continue to issue further debentures on the terms of the original prospectus. A suggestion has been made that this should not be done, and that the public should not be permitted to participate in the subscription of any unissued debenture capital on the same favourable terms, but that it should be reserved for issue to the existing debenture-holders. This will be decided upon at the meeting of the debenture-holders, which will shortly be held.

The CHAIRMAN said: Well, gentlemen, I beg to move the adoption of the report. I am sorry to have to apologise for the absence of Sir John Jenkins, who is detained by his Parliamentary duties. If anything could reconcile me, however, to his absence, and you also to what you may consider my undesirable presence in his place, it is that it gives me an opportunity of congratulating you not only on my own behalf, but on behalf of the board, on your exceeding good fortune in having secured as able a Chairman as you have in Sir John Jenkins. I may say that he possesses most admirable business habits, and, what is still better, we know him to be a man of high and independent character. I think some apology is also due for holding a meeting of this restricted character; we had hoped to have a meeting of debenture-holders as well as shareholders today. In a company constituted as this is not to meet the debenture-holders is something like leaving the part of Hamlet out by express desire when that play is performed. Unfortunately our legal advisers have not placed us in a position to meet them at this moment, and we are bound to hold this meeting as you are aware, in order to comply with the Companies Act. At the earliest opportunity we shall afford the debenture-holders an opportunity of meeting and of discussing as perhaps you will discuss to-day any point which may be thought desirable relating to your property. I need hardly say that such accounts will be presented in due time, as will on all occasions make every shareholder and debenture-holder fully acquainted with the financial position of his property. The report which you all have in your hands, and the prospectus, which I pre-

RAILWAY AND GENERAL MARKETS.—Referring to the course of business done to-day during official hours (11 to 3) Mr. Ferdinand R. Kirk Birchall, writes:—*Opening:* Great buoyancy characterises the American market, prices are higher in several instances than those of New York, and the demand for the most part, by the mostly buyers. The market has reached 14½; Central Pacific 4½, and Atlantic Firsts 35½. Unified are ½ lower, home railways disclosing no fresh feature. Trunks are very strong, and much higher, the Thirds being 25½, and the Seconds 55½—an advance of 1½ in each instance. Aerated Bread, 1½ to 1¼; Aylesbury Dairy, ¾ to ¾; John Moir, 6½ to 7; Cunard Steam, 3¼ to 3½; Newport African Steam Coal, 9½ to 10½, cum div. Mining shares continue in fair demand, quotations being maintained. Wheel Crebors, 13½ to 13½; the meeting is called for next Thursday. Oscar Gold, ¾ to 1; Bratsberg, 1½ to 1½; East Wheel Rose, ¾ to ¾; Old Shepherds, 1½, to 1½; Columbia Hydraulic, 9½, to 10½; Orita, 16½, to 16½; Collier Bk, 2½, to 10½; New Fokos, 1½, to 1½. Prices have been well sustained. Brightons are ¾ high. Lake Shore, 2½; Central Pacific, 3½; Erie, 1½. Trunk Ordinary have 1½ to 1½; Mason and Barry, 9 to 9½; Rio Tinto, 15 to 15½; United Mexico 3½ to 3½.

THE CAMBRIAN MINING COMPANY (LIMITED).

To the Shareholders in the original and
legitimate Company:—

Pinner's Hall, Old Broad Street,

London, July 1, 1884.

I cannot express the gratification it affords me to inform you that I have at last gained possession of the Cambrian Mines, and that I intend to hand them back to the original shareholders, of which you were one. In the gladness of my ultimate triumph I can almost forget that I have been the victim of one of the most diabolical conspiracies ever concocted by men, and carried out by the machinations of the law; a conspiracy that cost me personally upwards of £30,000, and shareholders the possession of the most valuable mines in this country. Without for one moment pretending to be a fatalist, I cannot but mention the singular fact that all those (with one or two exceptions) by whom this mischief was wrought are dead. Under these circumstances I am most unwilling to refer to them, although I must to their doings.

First, let me with a practical knowledge tell you the state your mines were in when the late poor vulgarian commenced the dirty work. Capt. Glenville had been dead some time, and his great loss had without doubt delayed the profits which were justly expected by the shareholders; your mines had, however, under his direction been opened out in a thoroughly miner-like manner, and with a view to a similar great and lasting success as he had previously been identified with in Cornwall. Many a time he has expressed to me his conviction that the Cambrian Mines would produce millions, and I must, in justice to his memory, impress upon you now the fact that all the stopes from which so many thousands of pounds worth of ore have since been sold and swallowed up by the wreckers were actually laid open under his management. When the nefarious proceedings first commenced I did not condescend to take notice of them, for I hardly conceived it possible that such transparent humbug and abuse could have any influence with men of education and sense like I knew many of the Cambrian shareholders to be. When, however, I broke silence I found out my mistake. Unfortunately shareholders had been already misled by false pretences into placing their interests in the hands of those working their ruin under the cloak of liquidation—you had practically handed your weapons to your assassins, and were powerless in their hands.

Although I kept silence too long, yet when I did speak it was with no uncertain voice, and everything that I then told you would happen has happened. I tried hard to save your interest, but alas! truth and honour were of no avail against the tricks of the law and liquidation. I venture to say that if the public knew one quarter of the gross injustices worked out by means of the "Companies Acts" the law would soon be altered. How many shareholders understand even now the trumped-up action commenced against Col. the Hon. T. G. Cholmondeley and myself, simply because we would not stand quietly by and see you all despoiled? Let me explain to you. One of the absurdities of the law relating to companies is this: although a vendor is entitled to whatever his property is worth, yet if he does anything towards promoting the company which purchases, the law says he is in a fiduciary position, and all he receives is really the property of the company.

As no company can spring into existence spontaneously there must perforce be connected with every company some moving power, and who so likely as the vendor?

Truly sense and law are widely different as applied to companies.

Sometimes dangerous currents are so strong that it becomes necessary for the most expert swimmer to dive under and take with him the object he proposes to rescue. I dived under for a time, taking with me your interests, and the wreckers were so far apparently successful. I told you all from the first that the new company was a bogus company formed for litigation, not for mining, and I knew that immediately the litigation was stopped, ruin in the shape of another liquidation would soon end it. My prediction proved true to the letter. Some thousands of pounds worth (about £7500 I believe) of the ore that Capt. Glenville and myself discovered was stopped away and sold; the only other operations performed was to drive the levels away from the lodes. I know that this is an astounding statement to make, and I would not venture to repeat it except on good grounds, and when I mention that I gain my information from a report made by the highest authority in England, viz., Capt. Josiah Thomas, of Dolcoath, there can be no room for the slightest doubt. This report was not made for me but for the No. 3 or abortive company, which was formed to carry on the works so unwisely commenced by the No. 2 or litigation company, viz., the driving the levels south to work a lode running east and west! Rather different this to the work carried out by the No. 1 or legitimate company.

I have patiently waited for the opportunity that I knew would come to me; indeed it is not too much to say that one of the chief objects of my life has been to again become the owner of the mines. Everything comes to he who waits. All the machinery, lease, &c., was mortgaged—I bought up the mortgage on the machinery; then I bought the equity of redemption of the lease, also all the tools, materials, &c.

At last I am sole possessor, to become which, together with the championing of your rights, has cost me a very large sum.

I now purpose handing back the mines without payment to the original shareholders.

I only stipulate that for all my outlay I shall have a small percentage on the ore sold.

Can I do more?

I intend calling a meeting in London shortly. I shall be obliged by your informing me the number of shares you held in the original company.

Yours, ever faithfully,

JOSEPH FELL.

P.S.—A plan of the mines recently made under the direction of Capt. Josiah Thomas is now being lithographed, together with his report. A copy shall be sent you; in the meantime, I must say that these documents not only expose the absurdity of recent operations but also are most valuable as pointing out clearly the true run of the lode, and suggesting cross-cuts, by which the previous mistakes can be turned to our great profit.—J. F.

Mining Correspondence.

BRITISH MINES.

BEDFORD UNITED.—H. Trease, July 1: North Lode: In the 138 east the lode is of very good character, producing good saving work. McClellan Shaft—Bridge Lode: There is no change in the lode at the 75. In the 62 east the lode is not taken down. In the same level west we are carrying the lode, which is 3 ft. wide, and exceedingly promising, worth 6s. per fathom. I may say that I have a very good opinion of the lode; so far as we have seen it west of the cross-course the lode has a very fine appearance. We have started to sink a winze in the bottom of the 62 west of shaft, but cannot proceed with it in consequence of the water; we must wait for the 75 to be driven up to unwater it. The several stopes and tribute pitches throughout the mine are without alteration. We sampled 123 tons of good ore, and are busily engaged sending off the mounds, which we think will be 200 tons by the end of the present month.

CASHWELL.—John Peart, June 28: The drift in Copper Hazle, west end, is looking a little better; more spar and a little more ore, but still very hard. The heading in Copper Hazle, next to the drift forehead, is yielding some good ore; the low part is looking well, and the ore is setting higher up; is worth fully 1 ton of lead ore per fathom. The heading in the above stratum, going east, is about the same as last reported. In the low part we have good ore, and at the top we are getting fine solid pieces; taking it all together, will yield 1½ ton of ore per fathom. The drift going east in Copper Hazle is very hard, and the vein does not improve. We will commence to rise next week, and when we get into plate drive off, so as to get quicker to the scar limestone forehead.

COLLACOMBE CONSOLS.—Wm. Skewis, July 3: The engine-shaft is sunk 11 fms. below the 96; the men are now engaged in cutting top-plate, after this is done we shall cut through the lode which is standing on the north side, if then found good as it is in the winze, which is down 13 fms. below the 96, and 50 fms. west from the shaft, we may then calculate that we have a fine piece of whole ground to work on, and the mine prove to be of great value for future working. The lodes in the 108, both east and west from winze, which are now about 5 fms. from each other, are worth about 2 tons of copper ore per fathom of good quality. These ends are being driven with all speed. The lode in the stope in back of the 96 is worth 8s. per fathom, and being worked at 1s. 7d. per fathom. The dressing is being pressed on with a view to get as much ore for next sampling as we can.

DERESBY MOUNTAIN.—J. Roberts, W. Sandoe, July 2: The lode in the stope at the bottom of No. 6 is very much of the same value as we reported it last week, worth about 1½ ton of lead to the fathom, but owing to the quickness of the water we are very much afraid that we shall be obliged to suspend operations in it till the shaft is made ready for working the pump with the engine. The men in the stope are busily engaged in cutting away the ground to complete the shaft.

DEVON FRIENDSHIP.—F. R. W. Daw, July 3: A full report on the mine shall be sent you next week. We have another parcel of arsenic ready for sale. **DEVON GREAT CONSOLS.**—Isaac Richards, July 3: Wheel Maria, North Lode: Fair progress is being made in cutting down the adit shaft, and the ground is of a most promising character. The lode in the 102, west of shaft, is a very promising character, and yields 2 tons of copper and mounds ore per fathom. In the western shaft, sinking below the 32 fm. level, the ground continues of a favourable nature for exploration. Before proceeding further with sinking this shaft, it is necessary to fix a permanent plunger-lift at this, the 32 fm. level, which work will be got on with at once with all possible dispatch. In the midway shaft, sinking below the 20 fm. level, east of the western shaft, the lode is 3 ft. wide, and continues some saving work of copper and mounds ore.

DEVON GREAT UNITED.—I. Richards, July 3: In the 120, east of Willeford's shaft, the lode continues of good size—4 ft. wide—and yields 1 ton of copper ore per fathom. In the 120, west of Willeford's shaft, the lode is 2½ ft. wide, of a promising character, and yields some copper and mounds ore of good quality. In the 60, west of Watson's shaft, on the middle lode, the lode is 3 ft. wide, composed of capel and quartz, with peach and a little copper and mounds ore. In the 50 cross-cut south at Watson's shaft the middle lode has been intersected, and cut into 12 in., and for the width it is composed of capel, quartz, peach, mounds, and a little copper. This is an important point in the mine, in connection with the development of this part of the mine on the western side of the counter lode, where we have a great length of unexplored ground with a cross-course about 120 fms. distant. We sampled on Friday last 95 tons of good quality copper ore.

EAST BLUE HILLS.—S. Bennetts, W. K. Mitchell, July 2: During the past week the lode in the engine-shaft is being desued, and the value remains as last reported—from 10s. to 12s. per fathom. The depth of the shaft from the adit is nearly 10 fms., and as soon as that point is reached—in the course of another week—the lode will be 10 fms. deep.

EAST CARADON.—W. George, J. Kellow, July 3: Setting Report: To drive 150 cross-cut south from Child's lode by nine men with boring-machine, which is being urged on as fast as possible. To drive 130 west from the western cross-cut on the course of a south lode by two men, at 6s. per fathom. The lode is at present disordered by a small cross-course, but producing some good quality copper ore, in more favourable ground for driving. To rise in back of the 130 east of eastern cross-cut (for trial) on a south branch by two men, at 3s. 10s. per fathom. This is 6 in. wide, having a very promising appearance, composed of quartz and mounds, with spots of copper ore intermixed. We have three tribute pitches to six men, at 12s. 4d. in 14.

EAST WHEEL ROSE.—W. Skewis, T. Doldge, R. Gill, July 1: Penrose's Engine-Shaft: The bearers for carrying the two drop-lifts—the 20 in. and 10 in.—are completed, and the two lifts dropped 6 fathoms below the 70, where they came into contact with another choke. This prevented our getting to the 80 for the time. We are pleased to say that these 6 fathoms were drained in less than three days after these lifts were set to pump below the 70. This shows our men as fast as possible, and we hope soon to get through it. North Wheel Rose shaft is still choked, but good progress is being made in clearing it. The shaft is now cleared to the 75. The plat here will have to be cleared, and when the shaft is cleared a little below it bearers holes will be cut and bearers put in to assist in carrying the drop-lift, which will be lengthened as the shaft is being cleared to the 85. This will save the time that would be required for cutting bearers-holes and fixing cistern, &c., at this (75) level, as we are most anxious to push forward the clearing of this shaft with all possible speed, so as to reach the bottom of the mine, and set men to work upon the rich silver-lode known to exist there. The tribute pitches in the upper levels south of Penrose's have improved, and consequently the tributers have made larger returns, also the pitch in the centre of the mine on Middleton's lode, continues equally as good as last reported. All the machinery is in good working order.

GAWTON.—George Rowe, June 30: In the 117 east the lode is 6 ft. wide chiefly capel, spar, and arsenical mineral, intermixed with good stones of copper ore. Nos. 1 and 2 stopes in the back of this level are yielding 6 and 7 tons of mounds and ore per fathom. The rise in the back of the 135 is communicated with the 95 shaft. The ore in this level is yielding 6 tons of arsenical mounds. The lode in the stope in the 135, east of shaft, are yielding 9 tons of arsenical mounds per fathom and 2 tons of ore per fathom. All other points continue without change. Our ore weighed off on Friday last 82 tons 12 cwt., and also sampled a parcel computed of 70 tons of ore.

GLASGOW CARADON.—W. Taylor, W. J. Taylor, June 30: The shaftmen have nearly finished the bargain to cut out penthouse at the 114, and the skip-road from there to the 126. As soon as this work is completed they will take to driving the 126 cross-cut south. In the meantime we have been pushing this end with other men as fast as possible, and the progress, owing to the work in the shaft, has been rather slow. There is no change to report in the cross-cut. The ground is close, and not letting out much water. We are now very near the first lode (Harvey's) and may cut it almost any day. Evidently this lode is continuing about its perpendicular course, which we consider is much in favour of our finding it productive. We will keep you well informed respecting this point.

GREAT HOLWAY.—W. T. Harris, July 2: Roskell's Shaft: In the 85 east the trial in the roof of this level produced some nice stones of lead, and present indications are strongly in favour of rich discoveries being made as further developed.—Level Engine-shaft: Tribute: In the 60, No. 1 pitch, in the back, a communication has been made with the more western workings, and ventilation much improved; the lode continues its usual productiveness, being now worth 3 tons of lead and 1½ ton of blende per fathom, set to 18 men at 65s. and 30s. per ton respectively. No. 2 pitch in the back and west of the former is yielding 2½ tons of lead and 1 ton of blende per fathom; set to 18 men at 50s. per ton the first and 30s. per ton the latter. This point being entirely new and undeveloped ground a long continuance of productiveness may be relied upon. No. 3 pitch, in the bottom of level, is worth 8 cwt. lead and 1½ ton blende per fathom; set to four men at 100s. per ton and 40s. per ton respectively. No. 5 pitch, in the bottom of level, is yielding 10 cwt. lead and 2 tons blende per fathom; set to four men at 100s. per ton the former and 40s. per ton the latter. No. 6 pitch, in the back west, is worth 15 cwt. of lead and 1½ ton blende per fathom; set to six men at 100s. and 40s. per ton respectively. No. 7 pitch, in the bottom west, is producing 8 cwt. lead and 2 tons blende per fathom; set to four men at 80s. per ton and 40s. per ton respectively. No. 9 pitch, in bottom west, is producing 8 cwt. lead and 1½ ton blende per fathom; set to six men at 120s. per ton and 40s. per ton respectively. No. 10 pitch, in back, is yielding 10 cwt. lead and 1 ton blende per fathom; set to 18 men at 100s. per ton the former and 40s. per ton the latter.—Bramble Shaft: The 60 east, No. 1 pitch, in the bottom, is worth 8 cwt. lead and 1½ ton blende per fathom; set to four men at 120s. per ton and 40s. per ton respectively. No. 2 pitch, in the bottom of level, is producing 8 cwt. lead and 1½ ton blende; set to four men at 100s. per ton the former and 40s. per ton the latter. No. 3 pitch in back is yielding 10 cwt. lead and 1 ton blende per fathom, and very promising for improvement, set to four men at 120s. and 40s. per ton respectively.—Office Shaft: In the 60 west the pitch in back is producing 10 cwt. lead and 1½ ton blende per fathom; set to four men at 120s. the former and 40s. per ton the latter. Machinery in sound condition and working satisfactory. Dressing making usual progress, and all cost has been reduced to lowest point in due regard to economy. Have sold 58 tons of lead and 68 tons of blende, which realised 704s. 11s., and have 20 tons blende in stock.

GREAT LAXEY.—F. Redcliffe, July 1: Having had to renew a piece or two of pump-rod in the engine-shaft, which caused the wheel to be idle for a few days and the pumping at a stand, some water accumulated in the bottom, so that very little work has been done there during the past fortnight. In the 247 and the lode continues to be worth from 12s. to 15s. per fathom. In the 235 north we have just started to drive on the west (or what seems to be the main) branch of the lode at that point (the level being driven on the east branch), and in the far advanced it has improved very much in value, and is at present worth fully 24s. per fathom. The working in the lode of the 190 north is not quite so good; at present worth 15s. per fathom.—Dumble: There is no ore to value in the end at present at the 243, but we are expecting any day to

meet with a good lode, as the end is up with the line where the first good ore commenced in the level above. In the 230 east north the lode, a few days ago, fell off in value, but it has again improved, and is worth 25s. per fathom. In the end above this (the 215) there is no material improvement, but the lode is opening a little. The 195 end seems to be now fairly through the broken slide ground, and we expect the lode to be more regular and productive; at present its value is 10s. per fathom. The winze in the 170 has just been holed to the 185, and we have placed the men to rise in the 170. The want of rain is much felt.

GREEN HURTH.—J. Polglass, June 26: The vein in the 44 end is rather improved, worth 1 ton per fathom. No. 1 stope is worked out. No. 2 stope is worth 2 tons per fathom. No. 3 stope is worth 2 tons per fathom. No. 4 stope is worth 3 tons per fathom. No. 5 stope is worth 2 tons per fathom. No. 6 stope, back of Standage, is worth 5 tons per fathom. In the north ground, 30, the men are at present rising in the bottom of trial drift to get above the crushed ground, which may take us all the month to accomplish. We commenced driving the adit level east towards Boder Mea on Monday. Vein about 2 ft. wide, without mineral at present. The clearing of level on No. 3 is continued. Dressing going on well.

HEALEYFIELD.—John Trelease, June 27: We have dropped the pumps into the Whitwell shaft; this week, fixed the dry spears to them, and placed in the cross-supporters for staying the pumps. I hope by the week after next to start work in the shaft, which will enable us soon to get below the slate sill, and drive to the vein. Our principal object must then be to get southward on the vein, in order to find the rich course of ground under that seen in the levels above. The stopes in the old mine are not looking quite so well this week. Machinery working well, and surface work progressing satisfactorily.

MILLFORTH.—John Michell, Joseph Tamblin, July 3: There is no alteration in our various bargains which require any special remark since the meeting was held last. The water is all gone from the bottom of Tregunty's shaft; we have put three men and three boys to look the same in order to communicate with rise as early as we can.

KIT HILL GREAT CONSOLS.—Isaac Richards, July 3: At the tunnel level the ground continues without important alteration. The distance driven during the past week is 2 fms. 3 ft.—North Engine-Shaft: We are making very fair progress in cutting plat, and, at the same time, we have been driving the 100 both east and west, where the lode is 5 ft. wide, of a most promising character, and yielding a little tin ore. In the 88 west the lode is also 5 ft. wide, and continues to present a very fine appearance, and yields a little tin ore.

LIANGELYNN.—O. Evans, July 3: The lode in the winze sinking on No. 2 level is about 2 ft. wide, yielding good blende, mixed with lead and copper, and the ground being easy the men are making good progress. The graphite lode in No. 3 level is also looking very well.

MID-DEVON COPPER.—James Neill, June 24: A Shaft: The water is now 16 ft. above the 70 plat, and is rising 2 ft. in 24 hours. The speed of the wheel has fallen off to 2½ revolutions owing to the scarcity of surface water. I never saw the river with so little water in it.—O Shaft: The stope in back of cross-cut, north from 50 east, worked by four men, still yields 1½ ton of ore per cubic fathom, and is surrounded by strata that augur well for a greater yield.

MELLANEAR.—John Gilbert, July 2: The new lode in the winze sinking below the 30, south of Gundry's shaft, is 1½ ft. wide, and yielding sulphurous mounds and some saving work of rich quality copper ore; the lode is also making a good footwall, and getting better defined. The ground in the 70 cross-cut, north of the main lode, is easy for driving, and still letting out a good deal of water, and looking congenial for copper ore. The lode in the 100, west of shaft, is 4 ft. wide, and yielding 1½ ton of copper ore per fathom. The lode in the 110, west of shaft, is 5 ft. wide, yielding 1½ ton of copper ore per fathom, and some saving work for tin. In the 110, east of shaft, the lode is 3½ ft. wide, yielding 1½ ton of copper ore per fathom, and occasional stones of tin. In the 120, east of shaft, the lode is 3 ft. wide, and yielding 1½ ton of ore per fathom. The rise in the back of this level is yielding 1½ ton of ore per fathom. In the 130, west of shaft, the lode is 4 ft. wide, and yielding 1½ ton of ore per fathom. The lode in Gundry's engine-shaft, sinking below the 120, is 5 ft. wide, and still yielding 2½ tons of ore per fathom. The stopes and the other part of the mine are just the same as when last reported.

MOUNTS BAY CONSOLS.—W. Argall, T. Job, June 23: We have just commenced to drive the 20 fm. level on the south parts of lode, which is producing good stones of tin, and likely to improve. In the 20 cross-cut north we have cut the north part of lode, which is from 6 to 8 in. wide thin work; the south cross-cut are letting out water. We have four pitches working in the 20 fm. level at 14. in 14, and we are preparing three pitches more for tributers where the lode is looking very well. At the adit level we have two pitches working at 15. in 14. The lobby has been completed, and plunger fixed for repeating the water; we shall now increase our returns of tin.

NEW BROOKWOOD.—James Browning, July 2: During the last month the shaft has been sunk 2½ fms., making a total depth of 6 fms. below the adit level. A branch has come in on the western side of the shaft. The winch has been fixed, and the ground around prepared.

July 3: The branch which has come into the shaft is undoubtedly a feeder to the lode; it is composed of quartz, peach, mounds, with spots of copper. I send you a small sample.

NEW CARADON.—N. Richards, July 2: There is no change to notice in the No. 1 lode in the winze sinking below the 50, as no lode has been taken down during the last few days. The lode we are driving on east of the main cross-course at the 20 is producing some rich copper ore, but not sufficient to value. If this lode does not improve in a few days we shall place the same pair of men to drive on a branch south of Dawe's shaft at the 50, which, close to the cross-course has a very promising appearance.

NEW LANGFORD.—S. Gregory, July 2: The lode in the 23 fm. level east is of great width, the south part on which we are driving is producing silver-lead, blende, and low quality silver ore. We have cleared the 10 fm. level west to the end, where the former company left off; here we find the lode fully 3 ft. wide, composed of beautiful quartz, prisms, carbonate of iron, with gossan, producing a little lead and blende of very great promise for a discovery. This end is now set to drive at 50s. per fathom, and 5s. in 14 tribute. The back of this level, a few fathoms behind this end, is also set on tribute. We have four pitches working at 10 in 14, machinery in good order and pitwork working well.

NEW SOUTH CARADON.—John Holman, William Clogg, July 3: We are pleased to state that good progress is being made in sinking the shaft, which is now about 24 fms. from surface, where the lode still continues its size, and from which we have during this week broken some splendid stones of yellow copper ore; this, considering the depth, is to us most encouraging, leading us confidently to conclude we shall soon meet with profitable results. We have completed the fixing of lift, cistern, &c., and commenced to sink on the underlie, which will be pushed with all possible speed.

NEW WEST CARADON.—S. Richards, July 2: There is no change to notice in the 38 cross-cut south nor in No. 5 lode, west of cross-cut at this level. This lode, east of cross-cut, has slightly fallen off in value, now yielding close upon 1 ton of ore per fathom—a most promising-looking lode for yielding large quantities of copper ore when properly laid open.

NORTH BLUE HILLS.—S. Bennetts, July 2: The driving of the deep adit cross-cut north from the engine-shaft has been resumed for the purpose of intersecting the tin lode seen in the shallow adit in contact with the elvan course.

NORTH BUXY.—J. James, July 3: The ground in the cross-cut at this level is of good character, and easy for driving. We have commenced to drive west on No. 1 copper lode; the lode is 2 ft. wide, and producing good stones of copper ore. I expect an improvement here, as a branch met with in the cross-cut will drop into the lode; this end is driving at 35s. per fathom. We shall commence to drive east from the cross-cut to-morrow, and at the same price.

NORTH GREEN HURTH.—James Polglass, June 26: The vein in the south level is smaller this week, but the vein itself is very promising. Nothing new in the Hospital property.

NORTH PENNETHAL.—S. Davey, Wm. Polkinghorne, July 3: High-burrow Shaft: The shaftmen have commenced to drive the 165 cross-cut north to intersect the Highburrow lode, which we hope to reach in about a fortnight from this time. The 150, driving west of shaft, the lode is 3 ft. wide, producing good stones of tin.

NORTH TRESKERRY.—Fryor and Son, July 2: There is no particular change in the points of operation underground calling for remark since our last report. The alterations and repairs in the engine-shaft alluded to in our report last week are steadily progressing without materially increasing the duty of the 55-in. cylinder pumping-engine, and our surface work is also being carried on with good speed.

OWEN VEAN AND TREGURTHA DOWNS.—Matthew Loam, July 2: At these mines, on Friday last, I was much pleased with the working of the new engine and stamps, and especially with the excellent results of the stamps. The stamps are working admirably, and the quantity stamped has been over 60 tons per day, and is fully equal to our expectation. The winding apparatus for drawing the supplies of tinstone over the incline to the stamps was not complete up to Friday, and, owing to this, we have not hitherto been able to maintain the continuous working of the stamps; but, from a letter received yesterday, I find it is now completed, and in effective working order, and the supply will in future be ample and continuous. We can now fairly calculate, with continuous working, upon a reduction of 70 tons per day with four hands, or 17½ tons per head, and this through the finest grates, and with exceptionally fine tin. This is a result, I believe, never before obtained, and is in striking contrast with the standard 1 ton per day of the ordinary gravitation stamps; and this has been done without forcing, and with the engine working within its effective speed. When the main shaft journal of the engine has ceased to heat, we can increase the speed to its full rate, and then I hope to stamp 20 tons per head per day. The yield of tin is satisfactory, and proves that in stamping the separation is complete and effective, as the waste is found practically worthless. I marked out the foundation of the new calciner-house, the building of which we shall push, as without it we can only prepare for sale a limited portion of the tin now being stamped. The stack is in a forward state.

—William Derry, Henry Prin, Verrant James, July 3: We have nothing special to report this week excepting that from indications to be seen in the old workings, near the stamps shaft, we believe we shall find the lode very productive there, as reported by the old miners, and this will give us a very long piece of stamping ground east of our present workings. The produce of our local stuff throughout the mine varies from 40 to 60 lbs. of tin per ton, and of this quality we have enough actually laid open on the south lode alone to yield 60 tons per day for years to come without opening any new ground whatever. After sinking the engine-shaft 6 fms. deeper we shall commence a cross-cut north to open up the north lode, which is represented by parties who formerly worked here as the most productive in the mine. The pneumatic stamps work beautifully, but owing to the unfinished state of some of our dressing appliances we are obliged to disengage two of the heads while these appliances are being made perfect. A few weeks, however, will see the dressing department equal to the stamps. We have no reason to doubt that 30 tons of tin can be sent to market monthly with our present stamping machinery, and we could now easily raise daily double the quantity of tinstuff which this is competent to reduce.

PLUSHEY'S.—T. Trelease, July 3: We have been making very good progress in driving the adit east this week. We have passed out of the bed of the old river, and have the elvan course on the south side of our level, and a very favourable strata of clay-slate for driving by its side; the strata is very freely intermixed with shors of flint, which still continues to produce mounds of tin.

POLBERRO.—W. Vivian, July 3: We have commenced to cut down the engine-shaft from surface, also to remove the rubbish from about the collar preparatory to building the engine-house. I hope to sell a parcel of tin again very soon, raised by the tributers.

POLOREBO.—W. H. Martin, July 2: The lode in bottom of Highburrow shaft is opening up very satisfactorily since we started the sinking under No. 40; this the most productive lode we have seen in the shaft, and it evidently shows

that as depth is attained the lode is stronger, and yields better quality tin-stuff. To-day we are sampling a parcel of tributaries' tin-stuff for sale.

PRINCE OF WALES.—S. Roberts, July 2: In the 192 east we are driving by the side of the lode, which is large and has a very promising appearance indeed. In the rise in back of this level we are stopping a piece of ground from the rise to the cross-course in the bottom of the 90, previous to taking down the lode. The drive of the 102 west is suspended for the present. We have no change to notice in the 90 and west, and the same remark will apply to the stopes and tribute pitches throughout the mine.

ROMAN GRAVELS.—A. Waters and Son, July 3: The 125, north of new engine-shaft, is worth 3 tons of lead per fathom. The 125 south is 1 ton per fathom, and will be more productive soon. The 110 south is in a small lode, worth 1 ton per fathom. The four stopes in the adit level are together worth 7½ tons per fathom. The 95 south is worth 1 ton per fathom. The eight stopes in back of this level are worth together 13½ tons per fathom. The 80 south is worth 2 tons per fathom. The cross-cut west now shows signs of being near the footwall of the great lode, but we shall report fully on this point next week. The three stopes in the 80, on the Roman vein, are worth together 7½ tons per fath. The 100 tons of lead ore sold to-day realised 661. 5s.

RUSSELL UNITED.—John Bray, June 30: I beg to hand you my report of operations since Dec. 12 of last year. Matthew's engine-shaft has been sunk below the 97 11 fms. 2 ft., making 23 fms. 2 ft. 1 in. below the 97; the lode in the last 11 fms. has varied in size from 2 to 6 ft. wide, in places producing large stones of rich copper ore and munda. Within the last 2 fms. the lode has taken a more perpendicular underlay south, therefore, we have sunk on the north side of the lode for the convenience of the lift, and shall cut south through the lode in the sink of the shaft in a week or 10 days. We purpose sinking the shaft 6 fms. further and then cross-cut to intersect the north lode, which we hope to reach in about 10 or 12 fms. From the appearance of the lode in the 97 we may fairly expect a good lode. We have changed the lift of pumps below the 97 for 14 fms., cut boiler-holes, put in bearers, eastern, line of rods, footway, cased and divided the shaft 3 fms., and secured some loose ground in the adit level west of shaft. Stephens' engine shaft has been sunk 5 fms. 3 ft. 9 in. (45 fms. 3 ft.) from surface. At this level we cross-cut south 10 fms. 4 ft., where we intersected the East Russell lode, which is 8 ft. wide, of a very promising character, producing little black grey with green carbonate of copper, 2 fms. 5 ft. 9 in. has been driven west on its course; the lode not proving so productive as expected, it was decided to sink another 12 fms. and cross-cut south to the lode, believing it will improve at that depth; 1 fm. 2 ft. has been sunk since in a good channel of highly mineralised ground. We shall push on this shaft with all possible speed. The small wire-rope has been changed from Lang's wheel to Stephens' shaft with 2-in. iron rods and part of length with 2-in. best steel wire-rope, pulley and stands complete. The machinery is working well.

SOUTH CONDORROW.—Wm. Rich. W. Williams, H. King, July 2: The 20 end, west of the engine-shaft, carries a little tin; the stopes in the back of this level is worth 10½ tons per fathom. We have cut through the lode in the 30 west, where it is worth 7½ tons per fathom; the driving is now resumed. The 40 end east is worth 12½ tons per fathom; the lode in the back is worth 12½ tons per fathom. The 50 end, east of King's, is worth 10½ tons per fathom; the stopes in the back is worth 10½ tons per fathom. The 60 end east is worth 8½ tons per fathom; the stopes in the back is worth 15½ tons per fathom. The stopes in the back of the 70 east is worth 15½ tons per fathom; the 71 end east is worth 7½ tons per fathom. The 80 end east yields low quality tin-stuff; the stopes in the back of this level is worth 13½ tons per fath. The 90 cross-cut, north of Plantation, shows strings of copper and munda. The stopes in the back of the 93 east is worth 12½ tons per fathom.

SOUTH DAREEN.—John Mitchell, July 3: The lode in the 130 west is still very wide and looks very encouraging, and is worth 2½ tons silver-lead ore per fathom. In the same level east the lode is stronger, but without any lead to value. The stopes maintain the value given last week. Owing to the continued dry weather there is no improvement in our supply of water. We intend to sample 25 tons silver-lead ore on Saturday, for sale on Friday the 11th inst.

SOUTH DEVON UNITED.—William Cooper, July 3: The lode in Martin's shaft, sinking below the 120, continues its size and character as last reported on, worth about 23½ tons per fathom. As anticipated, we have again intersected the lode west of the cross-cut at the 120, west of Martin's shaft, where it presents a very promising appearance indeed, being fully 4 ft. wide, and worth 18½ tons per fathom. The ground beside the lode is very similar in character to where all the principal deposits of copper ore have been found in these mines, and no doubt, as before stated, we shall find, as the level is extended in its present direction, that larger quantities will be discovered. Driven during the past week 4 ft. 6 in. the lode in the winze sinking below the adit level, west of old dump shaft the part carrying, 4 ft., presents much the same character as for some time past, being composed of goosan, spar, with stones of both munda and copper ore. Tribute: We have set the following pitches to nine men at 13s. 4d. in 11. A pitch in the back of the 80 east of Brook engine-shaft to two men, the takers to pay all costs. A pitch in the back of the 90 east of Brook engine-shaft to four men, the takers to pay all costs. A pitch in the back of the 90 east of Brook engine-shaft to three men, the takers to pay all costs. A pitch in the back of the 100 west of Brook engine-shaft to three men, the takers to pay all costs. We have also set the halvans at surface at 13s. 4d. in 11. I am sorry to inform you the water is still very scarce for surface operations, and is greatly interfering with dressing, &c., at present I see no likelihood of any rain; immediately we get an increase everything shall be pushed on with the utmost dispatch.

SOUTH PENSTRUTHAL.—Stephen Davey, July 3: Walton's Engine-Shaft: The men are making fair progress with the sinking of the shaft. The flat-rod shaft is completed to the 170, and the men are now engaged putting in timber to carry sollar, &c. Shall start to cross-cut to the lode to-morrow.

SOUTH TOLCARNE.—Jno. Jennings, July 2: Fraser's Lode: The stopes are looking fairly well for tin. In the 40 end west the lode is large, producing good stones of tin. We think this lode from indications will further improve in this direction, driving at 2½ tons per fathom. Taylor's Lode: This lode in the bottom of the 12 fm. level is not looking quite so well, but think this falling off is temporary. The indications are still looking very promising. Gossan Lode: The lode in the shaft sinking under the 35 is increasing in size, producing large lumps of tin-stone, and stamping work. We are making good progress in sinking, by nine men. The pitches are looking fairly well for copper, and improved for tin. We have cleared the 35 cross-cut south to the present end. We are now forcing on this drive to cut the flat lode and other lodes in this direction. No change elsewhere.

STANDARD.—W. H. Boriase, July 3: The new winze sinking below the 25, on north and south lode, fully maintains last week's valuation (2 tons lead) per fm., as do the other points throughout the mine. We have cut into the head or floor of the 35, and as anticipated, it now proves to be a part of the lode, producing good tin-stuff. Taking advantage of the continued dry weather, we have changed one of the crusher shells, and replaced some of the old stands to the top launders to pumping-wheel. Our winding water supply is getting very short, but there is now every appearance of a heavy fall of rain shortly, which will be very acceptable.

TRESEYAN.—J. Prisk, W. Edwards, June 23: Old East Shaft: The laying down of the launders for taking up the water in the 75 from this to the engine-shaft is now completed, and a great saving in the consumption of coal will at once be effected. The draining of the lower levels will also be carried on with more rapidly and less expenditure. Engine-shaft: The shaftmen will now proceed with the fixing of the bearers for the 15 in. plunger to be fixed at the 126, and no time will be lost in getting the same completed. Wheel Boys Shaft: Caddy's Lode: The tribute pitches here are about the same as last reported, and the tin-stuff of moderate quality. Cunnack's Shaft: The pitches in this part of the mine are improved, and we think will continue to do so; we shall as soon as possible increase the number, there being large sections of ground available for working. The 80 engine continues to work well.

WEST CARADON.—S. Richards, July 2: Gilpin's lode in 38, west of main cross-course, has improved appearance, producing stones of copper ore. The stopes in the back of the adit level on this lode will yield in the aggregate about 3½ tons of ore per fathom. A stope in the bottom of this level will yield 1 ton of ore per fathom.

WEST CREBOR.—J. Andrews, July 2: The lode in the engine-shaft sinking below the 50 is 3 ft. wide, composed of capel, quartz, munda, and a little copper ore; but not to value. In the 80 west we have just passed through a small cross-course which has disordered the lode for the time.

WEST GODOLPHIN.—J. Hodge, Francis, July 1: The sump shaft is now squared down to 13 fms. below the 80. Sollar fixed and the driving of both ends commenced. The remarks of the 70 east on Bellingham's of last week will apply to-day. Owing to the hardness of the rock in the 50 west we are not sufficiently advanced to expect a settled lode. The 40 west on Pink driving towards the rise is opening good paying ground; lode worth 8½ tons per fathom. The other bargains do not call for remark.

WHEAL COATES.—Wm. Vivian, July 3: The 30, driving west on the copper lode, has improved the past week, now worth 10½ tons per fathom. Driving east on the south lode the lode is about 2 ft. wide, of a very promising character. No change to notice in the cross-cut driving south at the 80.

WHEAL OREBOR.—H. Phillips, P. D. Holman, July 1: The lode in the 144, driving east of new shaft, is about 10 ft. wide, principally composed of spar and capel, intermixed with munda and good copper ore, and showing indications for further improvement. We have a good lode in the stopes above this end east, and we see no reason to doubt why it should not be going down in advance of the present end. The lode in the 144 driving west will yield 10 tons of ore and 4 tons of munda per fathom. The stopes in the back of this level will yield 8 tons of ore and 4 tons of munda per fathom. The stopes in the winze sinking below the 132 will yield 8 tons of ore per fathom. The lode in the 132 driving east will yield 1 ton of ore per fathom. The stopes in the back of this level will yield 2 tons of ore and 2 tons of munda per fathom. The lode in the 72, driving east of No. 1 slide, east of new shaft, contains a little munda and spots of copper ore. The lode in the winze sinking below the 48 will yield 4 tons of ore and 3 tons of munda per fathom. The lode in the stopes in the back of this level will yield 4 tons of ore and 4 tons of munda per fathom. All other points are without change.

WHEAL GRANVILLE.—T. Hodge, June 30: The 205 rise is worth 10½ tons per fathom. The 190 east end is worth 10½ tons per fathom. The 178 east end is worth 7½ tons per fathom. In the 155 east end we are making very good progress. Although the end is comparatively poor, yet the matrix of the vein is congenial for tin, and we feel confident that we shall be on a good lode soon. The 140 west end is worth 10½ tons per fathom. The 130 west end is worth 9½ tons per fathom. There is no change worthy of note below ground. We shall sell on Thursday next our usual quantity of tin. All surface work is being pushed on with the utmost dispatch. The engine-house walls will be up by Wednesday evening next. The following day the woodwork will be put on, when the engineers will commence to erect the engine; and for all we know now we shall get it to work by the specified time.

WHEAL PEEVOR.—W. T. White, T. O. King, July 3: All the bargains in the mine are being pushed forward. Between 7 and 8 fms. have been driven in the 48 cross-cut north during the last four weeks; and with this speed of driving we shall soon reach Great North Downs lode. We are expecting almost daily to meet with the new tin lode in this cross-cut. The ends driving on the new tin lode at the 15 and deep adit levels are opening up good tribute ground. We consider the prospect of the mine are good.

YORKSHIRE LEAD.—J. Bealish, July 2: Since my last report we have succeeded in clearing the deep adit level, known as Water level, through to Cat shaft, a distance of 400 fms., the last 180 fms. of which, from Brown's sump to Cat shaft, is driven on the course of one of Hawky's string veins, which is 10 to 20 ft. wide. Only a part of this vein has been worked, and is carrying a lode of metal 1 ft. wide. We can commence to raise metal on this vein at

once at from 50s. to 60s. per ton; this should give us a good profit. We have also sunk Cat shaft 20½ fms., which has brought us to a depth of 9 ft. below the Water level, and about 3 ft. into new ground. We have one of Hawky's string veins in the shaft about 3 ft. wide, and will produce about 4 tons of metal per fathom. The 3 ft. we have sunk on the vein it has much improved, and has good indications of further improvement as we sink, which will afford us very great help in sinking the shaft as it continues on its course. At the bottom of the shaft we have two cross-cuts, one extending south the other north. In the southern one 12 ft. from the shaft we have the old workings of Gutter String vein, which is about 3 ft. wide, and 15 ft. further south is Red Shaft vein, which is much wider. At this point the old workings are run full, and the level has to be cleared before we can get at the other veins. In the northern cross-cut 15 fms. from the shaft, we have another of Hawky's string veins 25 fms. further north, we have Woodgarth vein. These two have been largely worked on, and have been very productive for metal. At present our work is confined only to the sinking of Cat shaft. We have started the engine to haul the stuff coming from the shaft; it works exceedingly well. We have not yet used it for pumping as there is but very little water. If we had our dressing machinery up ready for working we could commence to return metal at once.

FOREIGN MINES.

CALIFORNIA.—Alfred Rickard, July 3: Telegram: Mill run, 510 tons; yield, \$4900 to \$5075.

CORPORATION OF SOUTH AUSTRALIAN COPPER.—Progress Report. Blinnan Mine; May 16: Stope in bottom of 60 south is worth 2 tons 25 per cent ore per cubic fathom. The stope in the 60 north is worth 2½ tons 25 per cent ore per cubic fathom. Stope in bottom of 50 south is worth 2 tons 25 per cent ore per cubic fathom. Surface: During the early part of week our dressing operations were idle in consequence of the heavy rains, since which we have as far as possible kept the machinery going full time. Machinery is in fair working order. We do not know the result of turning surface water into Saltia well yet, but we calculate the springs will be replenished, and we shall be able to jig two cores for some time to come, particularly as we are in the wet season, and the well will be refilled every rain. The estimated quantity of ore dressed for week ended May 16 is 25 tons 25 per cent.

CROOKE'S MINING AND SMELTING.—J. W. Plummer, June 7: 300 Level: Stope: Distant from shaft 32 ft. The vein is 2½ ft. wide, showing a considerable sprinkling of baryta. It assays \$28 per ton for silver, and produces 1 ton concentrates per fathom. Set a 50 ft. contract at \$10-50 per foot. Stope above 300 Level: The vein in this stope is the same as in the level below. We are engaged forming a stope, putting in stuff, &c. Stope above 700 Level: The vein is improving under development; it is 2 ft. wide, and will produce ½ ton concentrates per fathom. Winze below 700 West: This winze is down 42 ft. We have about 15 ft. yet to sink to communicate with the 800. The vein where exposed looks well, and will assay from 20 to 25 ozs. silver per ton. 600 ft. Level East: The men usually employed here have been employed elsewhere during the past week. Stope below 600 West: The vein in this stope will produce 4 tons concentrates per fathom. Stope below 500 East: The vein in this stope is 2 ft. wide, and will produce 1½ tons concentrates per fathom. Mill: To-day we commenced the concentrating works, and everything started well. We have a fair supply of good ore on hand, which will increase as the various stopes are opened out. During the past week we made 14 tons concentrates, which assayed 80 per cent. We also collected 6 tons prills of good grade, no doubt equal to the concentrates. I should have telegraphed this fact to you to-day, but the wires are down.

DENVER GOLD.—Frank R. Craven, June 14: 700 West North Vein: 2½ tons smelting ore sold for \$315-50. 800 West North Vein: Drift is in 353 ft. from cross-cut, and is temporarily stopped until we can hole through to new cross-cut. Stope below 800 West: The stope has changed considerably; 167 tons of mill ore last week yielded 42½ ozs. gold; 6-15th ton smelting ore sold for \$343-33. 900 West North Vein: West drift from cross-cut is in 142 ft. and is poor. East drift is in 92 ft., and carries 2 ft. of mill ore, as do 24 ft. of stopes above it. Have stopped breaking bottom of east stope from winze; 53 tons mill ore last week yielded only 13-16th ozs. gold. 900 West, Main Vein: 28 tons mill ore yielded 9-5-6 ozs. gold; 2½ tons smelting ore sold for \$50-62. Have made connection with winze. Have four men tubing at 3½ per cent, and half an acre of water's pay in bottom of level. 1350 West North Vein: Drift is in 442 ft. from shaft, and is all smelting ore. The ground is generally very hard; 17 tons mill ore yielded 10-4-5 ozs. gold. Old mill gleanings yielded 8½ ozs. gold. Output for the week ending June 13 (seven days) was as follows:—Mill ore, 207 tons, 76-3-5 ozs. gold; mill gleanings, 8½ ozs. gold; total gold, 84-4-5 ozs. Smelting ore, 10-4-5 tons sold for \$715-45.

DEVALA MOYAR.—Mine Manager, June 8: Salamon's Reef: We are making every exertion to connect the winze and the lower tunnel before the rains set in. They are getting pretty close together, as the slightest noise in one can be heard in the other, and I hope to hole through within a fortnight, when I shall have no fear of the water in the winze, as it will pass away through the tunnel. The tunnel has been driven 16 ft. during the week, and the quartz leaders we have met indicate that we are approaching the reef. The winze has been sunk 5 ft. more. In sinking this winze or shaft we have passed through quartz, containing good gold, and I purpose starting in three places on the best gold, and driving into the hill, testing the quartz periodically by crushing. The completion of the winze to the tunnel will give us 440 ft. of back. Fair averages have been made in the 60 and 140 ft. level north of west lode, and all stopes average 1 lb. of good ore. The ground is generally very hard; 17 tons mill ore yielded 10-4-5 ozs. gold. Old mill gleanings yielded 8½ ozs. gold. Output for the week ending June 13 (seven days) was as follows:—Mill ore, 207 tons, 76-3-5 ozs. gold; mill gleanings, 8½ ozs. gold; total gold, 84-4-5 ozs. Smelting ore, 10-4-5 tons sold for \$715-45.

EBERHARDE.—Frank Drake, June 7: During the last two weeks our work as well as our air current has been rather in a transition state. Some of the men have been employed in getting the air and water pipes in place for running the machine drills, and this has required some blasting. I have hastened the repairs on the main water-pipe all day, and for this purpose have had some of the tunnel men employed on the pipe line. I am glad to say the pipe line is in fair condition, the leaks mainly stopped, and that water is now flowing to the tunnel. The air-drills were started up yesterday, and this morning I reported the fact to you by open cablegram, as follows:—"Started drills sixth, number two drift. General appearance fair for ore." The natural air current through the ventilation pipe is insufficient for readily clearing away the fumes after blasting. While it remains so I intend to run the blower. I am overhauling the blower to-day, and hope to have all running smoothly in one or two days.

MYSOORE GOLD.—B. D. Plummer, June 8: Mining Operations: It affords me great pleasure to inform you that the lode in the bottom of the engine-shaft is very encouraging; it is fully 4 ft. wide, composed of compact quartz containing some iron pyrites and gold. At the present time it will yield 12 tons per fathom, or for the length of the shaft (10 ft.), 20 tons of ore per fathom in depth. The average value of the ore broken in this place, and which we have stamped, is 1 oz. 12 dwts. 16 grs. per ton, and though the assay this week only represents a value of 8 dwts. 11 grs., I believe the rock, taken altogether, is just as good as the 12 dwts. 16 grs. per ton. If the lode continues to hold on, and at present it looks kindly enough, we cannot help opening up a good mine. Two tons to a fathom, and calculate only 1 oz. to the ton, will give the lode very considerable value, especially when the mine is opened for stoping. The lode is very tight and compact, and in sinking we make slow progress, but we are doing our best, and I am hoping we shall now do better than we have done in the past few weeks. The 173 north end on the east lode is at present disordered, and it is not of commercial value, but it will doubtless improve again. The 173 north end on the west lode is likely to improve; the heavy part is about 10 in. wide, and is worth 5 dwts. 5 grs. per ton. The 155 ft. level north of east lode has improved; the lode is 2½ ft. wide, worth 13 dwts. 1 gr. per ton. Drawing Engine: This machine works very well, and after all the roads are got properly in order we shall find it exceedingly convenient. The stamps continue to work very well.

NERBUDDA COAL AND IRON.—Coal Raisings for May: Output, 3210 tons 2 dwts. 3 grs. 21 lbs.; sales, 3024 tons 11 dwts. 3 grs. 21 lbs.; consumption, 185 tons 11 dwts.

NEW POTOLI.—Telegram, 376 to 400 tons quartz milled; 451 to 475 ozs. gold remitted; 25 stamps running; 13 days' full work; 40 stamps will be running Aug.

QUEBRADA RAILWAY, LAND, AND COPPER.—March: Mineral sent to the coast:—Regulus, 357 tons, 21-96 per cent. dry; calcined ore, 68 tons, 11-48 per cent. dry; ore, 2327 tons, 11-49 per cent. dry; total, 3252 tons. Ore sent to smelting-works, 1829 tons, 6-16 per cent. dry. Home arrivals during the month, 7039 tons; sales of ore, 180 tons at 11s. 3d. per unit; sales of regulus, nil; stock afloat and on wharf at March 31, 6230 tons; stock at the mines at March 31, 505 tons; local traffic receipts for the month (railway), 3156½ tons.

RICHMOND CONSOLIDATED.—Telegram, July 1: Week's run (two furnaces) 845,000 lbs. of metal; 667 tons of refinery's product.

RUBY AND DUNDERBERG CONSOLIDATED.—June 8: Dunderberg: There are 24 tributaries at work, who are extracting about the usual quantity of ore. Have shipped 60 tons of ore during the week. Home Ticket: The winze below the fourth level has been sunk 7 ft. during the week; total, 41 ft. below the fourth level, no change. The tributaries between first and second levels are working with moderate success; nothing new to report in this part of the mine. There are four tributaries and two contractors at work. Have shipped 56 tons tribute ore this week. Lord Byron: The drift from the tunnel has been connected with the cave, but before clearing out the bottom of the cave we find that it will be necessary to drift about 15 ft. further on the north side of the winze to reach a suitable place to erect a windlass, otherwise it would require two windlasses to do the work; this is owing to a change in the course of the cave near the bottom. The tributaries are extracting some fair grade ore from the stope, which is now up about 50 ft. above the tunnel level; they have also commenced work in the bottom of the tunnel at the point where the ore was first discovered, and a cave was broken into yesterday which extends down about 40 ft., is fully 30 ft. in length, and from 6 to 10 ft. wide. The bottom is full of large boulders of limestone covered with beautiful lime crystals. Some of these boulders have been removed and good ore found underneath. Whether the ore extends the whole length of the cave or not cannot be ascertained until considerable more work has been done. I consider this a very important discovery, and it certainly shows an improvement since the special report was written, and you might add the particulars of this discovery to the special report. We have had a survey made through some other old workings which were badly caved in and filled with waste material. It turns out that these workings extend down to within 40 ft. of the tunnel level, but to make the connection it will be necessary to continue the tunnel a further distance of 117 ft., which work Mr. Rickard recommends to be commenced at once, as the showing in these workings appears to justify the outlay. Have shipped 2 tons of tribute ore.

Telegram, July 1: 21 tons ore shipped, and 30 tons smelted, producing to company \$340. No change of moment in the Home Ticket or Dunderberg Mines since the special report of June 4. At the Lord Byron the ore now being mined assays in gold and silver \$125 per ton.

ST. JOHN DEL REY.—Telegram, Morro Velho, dated Rio de Janeiro, June 28: Produce seven days (second division of June), 5500 ozs., value 2131. Yield, 4-4 dwts. per ton.

UNITED MEXICAN.—Mr. Hay, Guanajuato, June 9: Mine of El Diamante: In frente de Adela west the lode is now 50 centimetres broad, and ore has again appeared in a narrow strip to the back of the lode; only 7 cargoes were thrown down this end. As the ore has given out in frente de María east we have abandoned this end. In the pozo of San Antonio the lode has a width of 75 centimetres, with one of an improving quality ramified over its breadth; 8 cargoes of two classes of ore were sent to Duran last week. There is a ramification of

quartz over the cross-cut to the alto of frente No. 2 of Santa Rosa west. Altogether we have extracted 18½ cargoes from this mine during last week. Mine of San Cayetano de la Ovejera: In the frente No. 3 of San Juan west we have not yet found any ore since we resumed work in this end. In frente No. 3 of San Juan east the ore is ramified over the breadth of the lode, which measures 75 centimetres. On the 5th inst. 6 cargoes were sold for \$485. The frente No. 4 of San Juan west has holed in pozo No. 2 of San Juan. In frente No. 5 of San Juan west slight appearances of ore are discovered. In frente No. 5 of San Juan east at a public sale, held on June 5, we sold 14½ cargoes for \$1801; since then, however, the ore seems to have decreased in value. In pozo No. 6 of San Juan no work has been done in this winze since March 29. Last Thursday we sold 5 cargoes for \$258. In frente No. 15 of San Andres west, at the end of last week, the appearance of this end improved a little; the lode is 70 centimetres broad, all in pretty good ore.

In pozo No. 1 of San Andres the lode is 1-30 metre broad, and in it a strip of ore 20 centimetres wide, of which 5¼ cargoes were sold for \$365. We find slight appearances of ore in pozo No. 2 of San Andres. In pozo No. 5 of San Andres the lode is 1-10 metre wide, but the ore is, perhaps, not so good as it was the previous week. We are going to stop the work in this winze in order to open two ends, which will be called No. 11 west and No. 11 east respectively. We sold in public sale on the 5th inst. about 342 cargoes, for \$10,411. During the week ending June 7, 426 cargoes were sent to Duran, and 1 sold 3 cargoes 4 arrobas 21 lbs. of Bonito; thus we have extracted from San Cayetano during last week 772 cargoes of hacienda ore, to which, if we add the output from El Diamante, we have a total of 790 cargoes of hacienda ore from mines of the new concern. Adit: In the frente de St. Martin the end is in the same state as it has been in lately. Returns from the mines of San Cayetano de la Ovejera and El Diamante, \$15,547-95; outlay, \$4278-84. The remittance of 50000, previously advised has arrived.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c
1, ST MICHAEL'S ALLEY CORNHILL, LONDON

The death of Mr. Richard Davey, formerly M.P. for Cornwall, and one of the oldest and staunchest friends of the mining interest, brings to our remembrance the good old times when mining—Cornish mining—was in the ascendant, and enormous fortunes were made upon very small outlays indeed. Mr. Davey was then not only fond of speculating, but fond of practical mining; and the last time he came into this office he literally crawled up the stairs, having a short time previously, when under ground at Crelake (a mine near Tavistock, then making a noise, and in which Mr. Davey took great interest), fallen off the ladders and injured his spine. He soon afterwards retired from Parliament and to Bochym, where he, in his 85th year, has just died. His last mining ventures were in St. Agnes, at Blue Hills, Penhalls, &c.

For a number of years we did a large business with and for Mr. Davey, and 40 years ago, paid in one sum over 60000. for four shares in one mine in which he then held a large interest.

The great coup of the Daveys was Wheal Buller, part of the Old Buller and Beauchamp sett, which had been abandoned by Messrs. John Taylor and Sons. Beauchamp had made in earlier times 80,000. on an outlay of 6400. The Daveys took up the Buller part, and, after an outlay of 12800., or 57. per 256th share, the mine cut rich, commenced paying dividends in 1849, and, upon this outlay of 57. per share, paid in one year (1854) 2107. per share, or 54,7607. Altogether in 13 years the mine paid in dividends to the shareholders 244,6787. It was supposed at the commencement that the Messrs. S. & R. Davey held about 1-6th of the mine, and shares rose to 12000. each. We dealt in them at this price. In East Rose, again, the Daveys were large holders. In the year 1843, 41 years ago, we introduced East Rose to the London Market. The principal holders then were the Michells of Truro, the Daveys of Redruth, and Mr. Leveson Gower, Governor of the Bank of England. The latter gentleman's shares cost him 100. each, and he was greatly astonished one day when we offered him 3000. each for some of them, which he sold us. We afterwards gave him 12000. each for some, and to the Daveys we paid as high as 15000. each. In those days the mine paid over 50,000. a year in dividends, but was always a dangerous one to work. When on the mine in 1845 the late Capt. Middleton explained to us that many of the levels were boarded up, such was the wet and soft character of the lode, and when the boards were taken down the lead would rush out like soup. A few years afterwards a storm broke over the mine, a water-spout rushed down the shaft, drowned 40 men, the levels collapsed, and every means that science and money could suggest were in vain tried to re-open it at a profit. At that time we owned, with our friends, North Rose adjoining, which was managed by Mr. Wm. Carne, of Penzance, and as our shaft was in hard and solid ground, we sold it to East Rose Company, thinking they could get to the old ground through it, but they failed and threw it up and many others have tried it since. During the time of its riches, those who gave 15000. per share (256th) got all their money back in dividends. And when paying over 50,000. a year in dividends—the highest price the mine reached was 192,0007. Messrs. Davey had also been fortunate in Tolgus. In fact, there were Cornish giants in those days. Shall we ever see the like again? There is, it is true, Dolcoath, East Pool, Wheal Agar, and South Condorow paying good dividends with fine prospects, and there is West Frances coming in to swell the list; but we want a host of young things to turn up to put the market of the present day in a proper position.

Wheal Agar offers a remarkable instance of plucky endurance, and of great success, which a few persons always predicted, but which seemed at one time to be constantly evading their grasp through difficulties with machinery and heavy debts pressing upon the shareholders. Luckily the Messrs. Bolitho were the largest shareholders in Cornwall; and the mine never wanted for a strong advocate in London, for Mr. Waddington stuck to it through thick and thin, and when at one time it seemed almost like ruin to go on with it. We confess at one time we thought him a little too sanguine, so great did its pecuniary and other difficulties appear, and that gentleman deserves the thanks of the shareholders and of the mining community for the way he stood almost alone in supporting it. For when a thing is down and struggling there are plenty to give it more kicks than halfpence, though even some of these sort of people when a thing is a success will take credit for always having foreseen it.

And there are many things struggling on now that only want energy and perseverance to bring them to success; and, perhaps, at no time within the last 40 years have there been so many bargains offering. Our advice has always been to divide risks into five or six mines, so that success might be found in the aggregate, and there are several mines now to be picked up for as many shillings per share as they cost pounds, and which, if appearances are still to be relied upon, may turn up trumps in few months.

Even with the present price of copper Wheal Crebor is working to a small profit, but whether it would be wise to pay a dividend is another thing. There are one or two very important points to come off shortly, and we should advise waiting for them, and keeping a good credit balance till they are proved. This will strengthen the company instead of weakening it. At the old price of copper, 20s. per unit instead of 10s., the mine would be making a large profit, as it once did and may do again. In the meantime the mine is looking well, good points are coming off, and shares should be bought rather than sold. In regard to royalties, we confess it would be a gracious act in these dull times if the Duke of Bedford would remit them. With the rents they amount to about 12000. a year.

The 10 per cent. interest on D'Ersby Mountain debentures of 10000. is payable from end of March to those who took them up at the time, and we hope it will be paid at end of six months. To those who take them now the interest will be due from present time. On payment of back rents and royalties, the lords will remit 900. a year—that is, we shall have to pay 107. a year, instead of 10007., and to secure this boon we have made advances, and are anxious to see all the debentures taken up.

PIG-IRON.—Messrs. Wm. Connal and Co., Glasgow (June 30) writes:—The market opened flat and improved, but the advance has mostly been lost again. The lowest price accepted was 40s. 10d. on the 4th, and the highest paid was 41s. 9d. on the 18th, closing buyers 41s. 2d. The stock in store shows a decrease of 1864 tons, and new arrivals to 585,002 tons, with warrants in circulation for 50,620 tons. The Middlesbrough market has advanced slightly, and makers are firm for No. 2. The stock in Connal and Co.'s yards is 23,976 tons, being a decrease of 681 tons, and there are warrants in circulation for 52,284 tons.

TO THE METAL TRADE

FOR COPPER, TIN, LEAD, &c., apply to—
MESSRS. PELL, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

HENRY NUTT,
BIRMINGHAM,
PURCHASER OF
LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, TIN
ASHES, TERNE ASHES, AND ALL REFUSE CON-
TAINING TIN AND LEAD.

HENRY WIGGIN AND CO.,
(LATE EVANS AND ASKIN),
NICKEL AND COBALT REFINERS,
BIRMINGHAM.

A. J. CAMPBELL, M.E.,
ASSOCIATE ROYAL SCHOOL OF MINES,
CITY OF MEXICO.

SURVEYS AND REPORTS MADE IN THE REPUBLIC OF MEXICO.
Advice as to WORKING AND ERECTION OF MACHINERY, &c., given.
Apply direct, or to— 38, WARBROOK, LONDON, E.C.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JULY 5, 1884.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, common, f.o.b., Clyde...	2 1 1/2	2 1 5	English, ingot, f.o.b. ...	84 0 0	84 10 0
" Scotch, all No. 1 ...	2 2 3	—	" bars ...	85 0 0	85 10 0
Bars Welsh, f.o.b. Wales ...	4 17 6	—	" refined ...	86 0 0	86 10 0
" in London ...	5 7 6	—	Australian ...	83 7 6	—
" Stafford ...	6 7 6	—	Banca ...	nom.	—
" in Tyne or Tees ...	5 0 0	—	Straits ...	83 7 6	—
" Swedish, London ...	4 17 6	—	COPPER.		
Rails, Welsh, at works ...	9 0 0	9 5 0	Tough oak and ingot ...	59 0 0	59 10 0
Sheets, Staff., in London ...	7 5 3	7 10 0	Best selected ...	60 0 0	61 0 0
Plates, ship, in London ...	7 10 0	8 0 0	Sheets and sheathing ...	64 0 0	67 0 0
Hoops, Staff. ...	6 10 0	—	Flat Bottoms ...	67 0 0	70 0 0
Nail rods, Staff., in Lon. ...	6 7 6	—	Wallaroo ...	nom.	—
English spring ...	12 0 0	13 0 0	Burra, or P.O.C. ...	61 0 0	—
" cast ...	10 0 0	11 0 0	Other brands ...	nom.	—
Swedish, keg ...	13 0 0	14 0 0	Chili bars, g.o.b. ...	54 10 0	55 0 0
" lag. main ...	13 0 0	14 0 0	QUICKSILVER.		
Rails at works ...	4 12 6	5 0 0	Flasks, 75 lbs., war. ...	5 7 6	—
" Light, at works ...	5 12 6	6 12 6	PHOSPHOR BRONZE.		
LEAD.			Alloys I. and II. ...	£112 0 0	—
English pig, common ...	10 5 0	10 10 0	" V. ...	113 0 0	—
" special brands ...	10 5 0	10 10 0	" VI. and VII. ...	113 0 0	—
" L.B. ...	10 5 0	10 10 0	" XI., Duro A, Duro B ...	110 0 0	—
" W.B. ...	10 5 0	10 10 0	BRASS.		
" sheet and bar ...	11 7 6	12 0 0	Wire ...	6 1/2 d.	—
" pipes ...	12 7 6	—	Tubes ...	6 1/2 d.	—
" red ...	12 7 6	—	Sheets, sheet & sheets ...	7 1/2 d.	—
" white ...	12 7 6	—	Yel. met. sheet & sheets ...	5 3/4 d.	—
" patent shot ...	13 7 6	14 0 0	TIN-PLATES.		
Spanish ...	10 2 6	—	Charcoal, 1st quality ...	1 10 1 2 0	—
NICKEL.			" 2nd quality ...	0 19 0 1 0	—
Metal per cwt. ...	—	—	Coke, 1st quality ...	0 16 3 0 16 6	—
Ore 10 per cent. per ton ...	—	—	" 2nd quality ...	0 15 6 0 16 0	—
SPELTER.			Black ...	per ton 15 10 0	—
Silesian ordinary brand ...	7 6 14 12 6	—	Canada, Staff. or Gla. ...	12 0 0	—
" special brands ...	14 6 14 17 6	—	at Liverpool ...	12 0 0	—
English Swansea ...	15 10 0	—	Black Taggers, 450 of ...	—	—
Sheet zinc ...	17 15 0	—	" 14 x 10 ...	30 0 0	—

REMARKS.—Taken on the whole our markets have been slightly better during the past week, the tone having slightly improved, and somewhat higher prices have been realised for a few metals. We have now entered upon the second half-year, and it is also to be hoped a season of increased briskness in all branches of business, for there is a great deficiency to be made up from what has been done in the first half of the year. The little better feeling just now visible is a movement in the right direction and should receive encouragement, whether it arises from speculative causes or not, because it is almost sure to produce a beneficial influence over the trade, and help to restore the markets to their ordinary condition. Notwithstanding the slight advance here and there effected prices are still without exception very cheap, and in some cases unprecedentedly so, so that it only requires a stimulus to be given to the demand to create an augmentation in the aggregate amount of business transacted, and the question therefore to be solved is are there grounds for anticipating any increase in the regular demand? That which has kept business restricted heretofore has not been any particular adverse feature affecting trade, but a general nervousness, a constant fear lest some serious crisis should arise. Profits have been so very small, and losses of so frequent an occurrence, that it was thought many houses might be unable to stand out, especially as week after week has passed by with the usual result of constantly reduced prices. But so far there have not been many failures, and notwithstanding that many must have had their interests adversely affected by some suspensions of payment, and financial difficulties in this country and elsewhere, yet the total number of failures gazetted for the first half-year, compared with the corresponding period of last year, has been particularly limited, a feature which ought certainly to establish confidence, because it testifies to the fact that although trade has been limited yet it has been sound, though profits have been small yet the trade has been able to ward off any very serious crisis.

It is, therefore, not surprising that operators should begin to take a more cheerful view of the prospect, and that those who have heretofore been "bearing" the markets should deem the time has arrived for covering their sales. This may give an impetus to speculative buying, and cause, perhaps, a material enhancement of prices of some metals; but it is not only the speculative branch of the markets which may, perhaps, in the coming months show greater vitality. Extra speculation invariably springs up from the prospect of an augmented regular business, and, therefore, it will be interesting to see what the chances are of an increased general trade. Undoubtedly the main point to be overcome is to remove the shyness of some buyers, and to convince them that the present opportunity is a favourable one to commence purchasing, and when once this is done, buying will doubtless be continued with more or less briskness, for there is much to stimulate it just now. The low prices, the cheap money, the fine weather, are all factors which have long existed and been forced into the background, which could not be allowed to bear their usual influence upon the market; but as they still exist and the feeling has revived, they may be brought to the forefront, and help to establish a restoration, bearing it may be a still greater influence than usual, because they have for so long been kept in the rear. At any rate there seems some prospect of a revival, and certainly there are many features which should help it forward.

COPPER.—The tone of this market has decidedly improved, and from day to day higher prices have been realised for Chili bars. This may probably arise from the fact that prices were so extremely cheap, not perhaps without cause; but such low rates would almost of necessity attract the attention of buyers, hence a recovery sprang up, and buying, perhaps, has continued to be kept more animated by light charters being announced from Chili for the last half of June—only 900 tons. The statistics for the month of June are not satisfactory, because they show the total visible stock to be 45,763 tons, against 44,730 tons on May 31, or an increase of 1033 tons; and from this it might seem that the advance during the week is not warranted. But then it is hardly advisable to take merely one month's returns as an indication of the probable course of the market. Looking at the figures (say) for the first six months of the year, we find a reduction in the stock of 2784 tons, and a reduced price of about 4s. per ton, or to take a year's return there is a similar reduction in the stock and a reduced price of about 15s. per ton.

From this the upward course of prices during the past week may easily be accounted for, and there is certainly ample room, judging from a statistical point of view, for a further advance. It must not, however, be overlooked that since April 30 last stocks have been swelling, and that rather heavily; and, if this is continued, no rise can for long be maintained. At the same time, it may have risen from special causes, because during April deliveries were particularly heavy, and, therefore, consumers may have then more than satisfied their wants; and further, general business in this metal has been exceptionally slack during the last two months, which easily accounts for the supplies being an excess of requirements. The returns of Chili produce show the imports of that kind of copper during the last half of June to have been 884 tons, and the deliveries 919 tons, making the total visible stock in first and second hands in Liverpool and Swansea 24,331 tons on the 30th ult., against 24,366 tons on the 14th ult.

IRON.—This market remains very quiet, and prices are steady. There is no new feature, and the market at present shows no symptoms of improvement. With reference to pigs, the monthly statistics are, on the whole, favourable for the public stock in Glasgow was reduced during June by 1866 tons, and that in Middlesbrough by 681 tons. There is, however, ample room for further reductions, and it is not likely that any material improvement will be effected until stocks are considerably lightened. However, it is satisfactory to find that public stocks are being slowly yet steadily reduced, and that the requirements of the trades are slightly ahead of the supply. This has been a characteristic since the

furnaces in blast were reduced to their present number, and although it would probably have been more in the interest of makers to damp down more furnaces whilst they were about it, because it is a good sign to find stocks are being somewhat diminished. In manufacturing, business does not revive, but prices remain fairly steady, and no alteration of any consequence is anticipated to be made at the Quarterly Meetings which are to be held next week at the various important manufacturing centres.

Some few buyers are said to be holding orders in abeyance until after the meetings have taken place, in order to see whether makers effect any alteration in their quotations, but at the same time business then is not expected to be large. The question of wages still unsettles prices in some districts, but manufacturers cannot realise any better prices, as when they attempt to put up their quotations it causes an immediate check to the demand. The prices of makers' iron are firm, and there is not much held by second hands, while makers are in some instances being rather pressed for delivery. The Glasgow warrant market has remained fairly steady, and on the whole the tone has improved. On Monday there was business done between 41s. 1/2d. and 41s. 2d., with buyers at the close at the higher figure; and on Tuesday there was a good deal of disposition shown to make purchases, and various transactions were recorded between 41s. 2d. and 41s. 3d. On Wednesday the market was firm, and there was a considerable business transacted between 41s. 3d. and 41s. 3/4d.; and yesterday again there was a considerable business done up to 41s. 6d., but afterwards the market became easier, and 41s. 4/4d. was accepted, and this is the closing figure to-day. The shipments last week were rather small, and amounted to 8133 tons, against 13,273 tons for the same week of last year, being a decrease of 5140 tons, and which makes the total shipments for the whole of this year 281,322 tons, against 314,748 tons for the corresponding time of last year, and 315,028 tons for the similar period of 1882.

The number of furnaces in blast remain at 95, and the public stock has been reduced by a further 185 tons, and amounts to 589,002 tons against 589,187 tons last week. The imports of Middlesbrough pig-iron into Grangemouth last week were 5229 tons against 3660 tons for the same week of last year, being an increase of 1569 tons, and which leaves a total decrease for the whole of this year compared with last of 2845 tons. The Cleveland market remains quiet, and there is no change in prices, No. 3 being quoted at 37s., and No. 4 at 35s. 6d. The shipments of pigs during June were about 12,500 tons less than in May, and amounted to about 80,000 tons. The public stock shows a further reduction of 281 tons, and is now estimated at 57,928 tons. The shipbuilding trade is dormant, new orders are scarce, but the wages dispute has been satisfactorily arranged. In manufacturing there is but little doing, prices being steady at 51s. 2s. 6d. to 51s. 5s. for bars; 41s. 15s. for angles, and 51s. for ship-plates.

The Cleveland ironmasters' returns for June are decidedly unfavourable, and worse than they have been for some months past, there being an increase in the total stocks of 3747 tons. The make of Cleveland iron last month was 130,142 tons, and of hematite 67,852 tons, being a reduction, compared with the month of May of about 13,000 tons. At Wolverhampton buyers are said to be withholding their orders until after the Quarterly Meeting next week. Prices for sharp delivery are a shade firmer owing to the colliers' strike. Sheets are offering at 71s. for angles, 71s. 10s. for doops, and 81s. 10s. for ladders. Common bars rule from 51s. 15s. to 51s. 5s., and hoops at 51s. 10s., steel hoops, sheets, and plates being in slightly better demand. In pigs there is not much doing. Staffordshire part mines being quoted at 45s., and Derbyshire 42s. 6d. Business at Birmingham is said to be almost at a standstill, and while a few specifications have been given out for old contracts fresh orders are very limited. The market is entirely without feature, and it is not thought probable that any change will be made in prices next week.

TIN.—During the past week there has been a good deal more cheerfulness on this market, business has been more animated, prices have advanced, and the tone of the whole market has decidedly improved. On Saturday the market at the opening was steady, and below 82s. was accepted for cash parcels of foreign; but from this point there was a smart rally of 7s. 6d. to 10s., which improvement was fully sustained on Monday, and up to 83s. 2s. 6d. was realised on Tuesday, the market strengthening on Wednesday, and then remaining steady, and again strengthening to-day. The statistics for the month of June are very satisfactory, and show a reduction of 1129 tons in the total visible stock, which amounted on the 30th ult. to 13,506 tons, against 14,635 tons on May 31. The price at the end of June was 1s. per ton lower than at the end of May, and it is, therefore, not surprising that steps should be taken to immediately restore prices by that amount with such an enormous reduction in the total stock.

Comparing the statistics at the end of last month with those for the corresponding periods of the two previous years the figures are very striking. At the present time the price is 12s. per ton lower than at the same time of last year, and the stock is more than 1000 tons less, while the stock now is nearly 1000 tons less than it was at the end of June 1882, and the price just 16s. lower. This strongly indicates an advance sooner or later being effected in the value of this metal, and the movement begun this week may not unlikely be the forerunner of a material and important rise. The deliveries last month were very good, and amounted to 2032 tons in London and Holland, while the supplies from Straits to London were 500 tons; from Australia to London, 600 tons; from London and Holland to America, 590 tons; from Straits to America, 150 tons, and from Australia to America, 100 tons.

SPELTER.—The market is unchanged and quiet, ordinaries being quoted at 147s. 6d. to 147s. 12s. 6d., and specials at 147s. 12s. 6d. to 147s. 17s. 6d. per ton.

LEAD.—Is exceedingly dull, and business has been done in Spanish at 107s. 2s. 6d. and rather sellers over, and English is quoted at 10s. 5s. to 107s. 10s. per ton.

STEEL.—The market generally is dull, but at Birmingham there is said to be a slightly better demand for steel sheets.

TIN-PLATES.—There is no cause for complaint of the amount of business doing in tin-plates both in ordinary and special sizes, while prices all round remain steady.

QUICKSILVER.—The demand continued very large at 51s. 5s., and in consequence thereof the importers raised their prices on Wednesday to 51s. 7s. 6d. Second-hand holders do not offer anything at present.

During the greater part of the week the MINING SHARE MARKET has been in the usual (of late) dull and inactive state; but a slight improvement has taken place at the close, and a few mines are in demand; for the most part, however, quotations are merely nominal. The mines dealt in chiefly have been Dolcoath, East Pool, Wheal Agar, Wheal Crebor, Roman Gravel, West Frances, Bratsberg, Oscar Gold, and a few others.

TIN.—No alteration has been made in the standards for ore since June 11. Statistics of the trade are more favourable. The stocks are said to be 2200 tons lower than they were two years ago, yet the price is 12s. per ton less than it was at that time. There has been very little doing in shares. Carn Brea, 1 to 1 1/2; at the meeting the accounts showed loss on four months' working of 4867l., and a debit balance of 13,061l. A call of 10s. per share (3000l.) was made. The tin sold, 243 tons, realised 10,922l. Here is a mine selling 60 tons of tin a month at a loss of 1200l. a month. Cook's Kitchen, 11 to 12; Dolcoath continues to look well, but the rise in shares has scarcely been maintained; they leave off 75 to 77. East Blue Hills, 3s. to 5s.; the shaft is now down 10 fms., and driving will soon be commenced under the tin ground. East Pool, 41 to 42; Killifreth, 9s. to 11s.; New Kitty, 1 to 1 1/2; South Condarrow, 8 1/2 to 9; South Frances, 8 to 8 1/2; Tincroft, 2 1/2 to 3; Tresvane, 4 to 5; West Basset, 3 to 3 1/2; West Frances in fair demand at 5 to 5 1/2.

Wheal Agar, 16 1/2 to 17; Wheal Basset, 2 1/2 to 3; West Kitty, 11 to 11 1/2; Wheal Grenville, 5 1/2 to 6; Wheal Kitty (St. Agnes), 4 to 5. At Wheal Owles meeting a profit was shown on the quarter of 587l., but a balance against the adventurers of 2647l., towards which a call of 1l. per share (2000l.) was made. The tin sold, 82 tons, realised 3887l. South Kitty, 2 1/2 to 3; West Polbreen, 1 1/2 to 2; Polbreen, 1 1/2 to 2; Phoenix, 2 to 2 1/2; South Crofty, 3 to 3 1/2.

COPPER.—At the Cornish Ticketing on Thursday the standard for ore remained stationary. The average price of the ores sold was 21s. 12s. 6d. per ton. Average produce, 6 1/2; standard, 87l. There is very little doing in shares. Copper is firmer. Bedford United are quoted 1 1/2 to 1 1/2; Devon Great Consols, 2 1/2 to 2 1/2; Gunnislake (Clitters), 2 to 2 1/2; New West Caradon, 2s. to 3s.; the lode here still looks very promising. Prince of Wales, 1/2 to 1; the works here commencing this week will be confined to such points as may lead to good discoveries at a greatly lessened cost for the future. The 102 level is looking well. New Caradon, 2s. to 4s.; West Crebor, 2s. to 4s.; West Seton, 4 to 4 1/2. Wheal Crebor, 1 1/2 to 1 1/2; this mine at the meeting will show a small profit on the four months' returns, notwithstanding five months' costs have to be charged this time against them.

Mellanear, 12s. 6d. to 15s.; the sale of ore on Thursday (625 tons) realised 1344l. At South Penstruthal the cross-cut to the lode has been started. At North Penstruthal the cross-cut to Highburrow lode at the 165 has been commenced, and the lode will be reached in a fortnight. New Cook's Kitchen, 3 to 1; South Caradon, 1/2 to 1; Devon Friendship, another parcel of arsenic is now ready.

LEAD.—Continues flat and scarcely anything doing in lead shares: Vans are quoted 1 1/2 to 2; Great Laxey, 9 1/2 to 10 1/2; Roman Gravel, firmer, at 2 1/2 to 3; D'Eresby Mountain, 1/2 to 1. At South Darren the lode in the 130 west is worth 2 1/2 tons silver-lead ore per fathom; the sampling next week will be 25 tons of lead ore. East Rose, 3 to 4; Old Shepherds, 1/2 to 1; New Langford, 1/2 to 1; Leadhills, 1 1/2 to 1 1/2; Weardale, 1 1/2 to 1 1/2; Gwernymynydd, 1/2 to 1.

FOREIGN MINES.—There has been little business done in these shares except United Mexican, Mason and Barry, and Oscar; the latter are being run up considerably. The principal quotations are—Alamillos, 1 1/2 to 1 1/2; Amada and Tirito, 3-16ths to 5-16ths; Aus-

tralian, 1 1/2 to 2 1/2, x ret.; Balkis, 1/2 to 1; Birdseye, 1 to 1 1/2; Bratsberg, 1 to 1 1/2; Callao Bis, 1/2 to 1; Cape Copper, 42 to 44, x.d.; Chile Gold, 3-16ths to 5-16ths; the remittance for May was 1784 ozs., 27 days, 60 stamps, produced from 2887 tons of quartz. The remittance for the same month last year was 3085 ozs., 26 days, 40 ozs., produced from 2006 tons of quartz. Colombian Hydraulic, 5-16ths to 7-16ths; Colorado United, 2 to 2 1/2; Copiapo, 2 to 2 1/2; Fortuna, 2 1/2 to 3 1/2; Frontino and Bolivia, 1/2 to 1; Kapanga, 1-16th to 3-16ths; La Plata, 3-16ths to 5-16ths; Lisbon-Berlyn, 1/2 to 1; Mason and Barry, 8 1/2 to 9; Michipicoten, 1/2 to 1; Montana, 1 1/2 to 2; New Callao, 1/2 to 1.

New Emma, 1/2 to 1; New Potosi, 1/2 to 1; Organos, 1/2 to 1; Orita, 1/2 to 1. Oscar (1/2 paid) are quoted 1 1/2. Quebrada Railway, 3 1/2 to 4 1/2; Richmond, 3 to 3 1/2; Rio Tinto, 98 to 100; ditto shares, 14 1/2 to 15 1/2; Ruby and Dunderberg, 1/2 to 1; Schwab's Gully, 7 1/2 to 8. South Australian Mines Corporation, 1/2 to 1; the latest advices state that the lengthened drought had broken up with a very heavy rainfall, as much as 9 in. of rain had fallen in one week. This had replenished all the springs, but had slightly interfered with surface operations at the Blinman Mine, and only 25 tons of 25 per cent. ore had been dressed during the then current week. Pipes had been laid from the Salties well to the neighbouring creek, so as to conduct the storm water when flowing down the creek into the well, and thus keep up a more constant and larger supply of water for dressing purposes. Tharsis, 5 1/2 to 6 1/2; Tolima, A, 6 to 7; ditto, B, 5 to 6; United Mexican, 3 1/2 to 4; Panulillo, 4 to 4 1/2; West Callao, 1/2 to 1.

The Market for Mine Shares on the Stock Exchange has been very dull all the week, and prices have been almost without exception lower; but, as the general markets close decidedly firmer this afternoon, great hopes are entertained that a restoration of activity may now be looked for. Copper has somewhat improved, but tin and lead continue their downward course, the latter metal being now readily purchasable at 10s. 5s. per ton. Several new Hungarian, American, and Australian enterprises are ready for launching; but, in the present state of affairs, their promoters have not the courage to risk the preliminary expenses.

Our usual telegram from Cornwall this evening states:—During the past week the Cornish Mine Share Market has been somewhat quiet, and transactions limited, but the tone generally has been firm, the tin market showing more steadiness, and the statistical position being more favourable. The excitement for Dolcoath shares has abated, but shares remain very strong and well held. The lode in the cross-cut is expected to be intersected at any moment, and the other parts continue very rich. There has been a little demand for South Frances, and shares are a trifle stronger. A dividend not exceeding 5s. is expected at the next meeting. Amongst shares which remain firm are East Pool, West Kitty, West Frances, and Wheal Agar. At Carn Brea, yesterday, a loss of 4867l. was reported. A call of 10s. per share was made. Wheal Owles accounts showed a profit of 580l. A call of 1l. per share was made. At Redruth, yesterday, 780 tons of copper ore realised 2052l., the standard remaining unaltered. Next sale at Truro, July 17; quantity, 1788 tons.

Devon Great Consols, 2 1/2 to 2 1/2; the monthly sampling is 800 tons of copper ore. The 205 is producing 3 tons of mineral, and the 120 2 tons per fathom.

Devon Great United, 1/2 to 1; the largest sampling copper ore yet made, computed at 95 tons of very good quality, took place on Friday last. An important intersection of the lode has been made at the 50 cross-cut.

Drakewalls, 1/2 to 1; the 90 west is being pushed forward with expedition, in order to get under the long run of rich tin ground seen in the 80. The lode is reported to be improving, and is producing some rich samples of tin ore.

Kit Hill, 1/2 to 1; the great Tunnel level has been driven during the past week 15 ft., and driving has been commenced at the 100 east and west, where the lode is large, being 5 ft. wide, and of a most promising character, yielding tin ore.

South Devon United, 1/2 to 1; a good discovery has taken place in the 120 ft. level to the west of small cross-course, where the lode has been opened into, and, so far as seen, is 4 ft. wide, and worth 16s. per fathom. Martin's shaft, sinking below this level, is valued at 23s. per fathom.

South Frances, 8 to 8 1/2, and in better demand; a good dividend is expected at the meeting of shareholders on Thursday next. The mine continues to open out rich tin ground in the shaft and various levels.

Ruby and Dunderberg, 1/2 to 1; the chief interest at present is at the Lord Byron Mine, where the prospects are considered encouraging, another cave having been broken into, with rich ore at the bottom. In the telegram received on Tuesday it mentioned that the ore then being sent down from this mine assayed \$125 per ton.

In Lead Mines shares there is absolutely nothing doing, and with lead at 107s. 5s. per ton it is not surprising that purchasers are difficult to find. Quotations are entirely nominal. Roman Gravel, 2 1/2 to 3; the bottom level, or the 125 north of new engine-shaft, is producing 3 tons of lead ore per fathom. The 125 south is worth 1 ton per fathom. The 110 south is worth 1 ton per fathom. The four stopes in the back of the level are worth 7 1/2 tons per fathom. The 95 south is worth 1 ton per fathom. The stopes in back of this level are worth 13 1/2 tons per fathom. The 80 south is worth 2 tons per fathom. The stopes in the 80, on Roman lode, is worth 7 1/2 tons per fathom. The sale of ore on Thursday last, 100 tons, realised 661s. 5s.

The directors of the Imperial Bank recommend a dividend for the past 16 months of 7 per cent. per annum, carrying forward 5000l. The Anglo-Foreign Banking Company give notice that the usual interim dividend of 2 1/2 per cent. (3s. 6d. per share) for the six months ending June 30 has been declared, payable on and after July 16.

The directors of the United Discount Corporation at the general meeting, July 17, will declare a dividend at the rate of 7 per cent. per annum, free of income tax, carrying forward 10,046l. 5s. 7d. to the next account. This compares with 6 per cent. the previous half-year, when 5023l. 14s. 6d. was carried forward.

The London and San Francisco Bank give notice that they are prepared to purchase the interest coupon No. 6 of the First Mortgage Six per Cent. Gold Bonds of the Oregon and California Railroad Company, Nos. 1 to 9000, at the rate of exchange of 4s. 2d. sterling per dollar. The coupons must be left at the bank three clear days for examination.

The numbers are announced of 46 bonds of the Russian Five and a-half per Cent. Land Mortgage Bonds, of the Central Bank of Land Mortgage Bonds (second series), drawn at St. Petersburg on June 1 (13), to be paid off at par, on and after Aug. 13; the 21st coupon of the above series falls due same date.

The interest warrants for the half-year ending June 30 on the Four-and-a-half per Cent. Stock of the Railway Debenture Trust have been posted.

The Coupon No. 3 of the Debentures 1 (10,000) of the Direct Madrid, Saragossa, and Barcelona Railway are now payable by Messrs. Aynard and Ruffer.

The shareholders of the Banque Franco-Egyptienne are informed that the balance of the dividend in respect of the financial year, 1883, will be paid at the company's offices in Paris, or at the Imperial Bank.

The Oregon and Trans-Continental Company, lessee of the Oregon and California Railroad Company, surrendered the railroads to the Oregon and California Railroad Company last Saturday night, and that particulars of settlement between the two companies will be published as soon as the texts of the documents are received in London.

The Six per Cent. quarterly dividend warrants of the Hartlepool Steam Tramways Company, guaranteed by the Public Works and Company, is now being paid by the National Provincial Bank of England at West Hartlepool.

The London and South African Exploration Company's directors announce an interim dividend of 2s. per share for the quarter ending June 30, making 4s. 6d. for the six months. This distribution corresponds with the amount paid for the first half of last year.

The numbers are announced of 85 bonds, amounting to 14,300l., of the Unified Five per Cent. Loan, 1883, for 11,127,000l. sterling of

the Oriental Republic of Uruguay, which have been drawn for payment at par, on and after Oct. 1.

The half-yearly interest on the debentures of the Australian Mortgage Land and Finance Company, due July 15, will be paid at the Royal Bank of Scotland, and warrants for the interest due same date of the Four per Cent. debentures will be posted on July 14.

The traffic receipts of the Eastern Extension Australasia and China Telegraph Company for June amounted to 31,787l., and to 31,307l. for the corresponding period of 1883.

The Norfolk and Western Railway Company's net earnings for May show a decrease from same period last year of \$4462.

William Elmore and Co. (Limited) debenture interest warrants to date have been duly issued and paid. They are now quoted 46l. per 50l. bond, but no business is reported in them.

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY.

At the fifty-third annual general court of the society, held at Edinburgh, on June 30 (Mr. JOHN BRUCE, the senior director, in the chair), the SECRETARY read the directors' report. The new business of the past year has exceeded that of any previous year in the history of the society, the present being the fourth year in succession in which they have been able to make this gratifying statement. The number of proposals they had under consideration during the year was 1415, for a total amount of 906,317l. Of these, 206 for the sum of 180,269l., were either declined or not proceeded with; and, deducting them, the number of policies issued was 1209, for the sum of 726,048l. The total new premiums amounted to 24,143l. 4s. 8d., of which 3794l. 3s. were single premiums. The amount reassured during the year was 87,000l., and the corresponding premiums 1788l. 14s. 7d.; the net new sums assured being thus 639,048l., and the new net premiums 22,354l. 10s. 1d. The various classes of insurance to which the new policies belonged were—1. With profits: Ordinary whole term, 497 policies, assuring 244,550l.; endowment assurances, 279 policies, assuring 71,750l.; other classes, 45 policies, assuring 24,250l. = 821 policies, assuring 340,550l. — 2. Non-forfeitable, with ultimate profits, 136 policies, assuring 64,600l. — 3. Without Profits: Ordinary whole term, 145 policies, assuring 120,825l.; other classes, 107 policies, assuring 200,073l.: total, 1209 policies, assuring 726,048l.

The total income of the year was 358,072l. 15s. 1d.; and excluding the exceptional item of 6009l. 7s. 1d., profit on reversions, the ordinary income was 352,063l. 8s., which shows an increase of 8661l. 6s. 11d. above that of former year. The total outgo was 275,347l. 5s. 9d., and the addition to the funds for the year was 82,725l. 9s. 4d. The assurance fund is thus raised to 2,744,842l. 18s. 1d., and the average return produced by the investments representing this is 4l. 7s. 10d. per cent. The expenses of the year have been increased by the cost of the quinquennial investigation, but, excluding this, the ordinary expenses have been 12l. 10s. 4d. per cent. of the premiums of the year, and 8l. 7s. 8d. per cent. of the total income.

As to the mortality, the number of deaths among the members during the year was 260 as against 282 which were to have been expected according to Carlisle mortality table, and as against 243 and 240 which occurred in the two previous years. The claims which have arisen in consequence are:—Original sums assured under 270 participating policies, 154,837l. 16s. 9d.; bonus additions, being 34l. per cent. of the original sums assured, 53,434l. 1s. 4d.; sums assured under 12 non-participating and eight non-forfeitable policies, 11,643l. 11s. 10d. = 219,915l. 9s. 11d.; deduct re-assurances, &c., 8019l. 17s. 5d.; net claims by death, as per revenue account, 211,895l. 12s. 6d. The average amount of the policies which became claims in the year was 756l., or, excluding bonus, 572l. The total amount of claims paid by the society since its establishment is 5,404,278l. 9s. 6d.

With regard to the progress of the business, the number of policies in force on March 1 last was 15,075 on the lives of 12,885 persons; and the total amount assured thereunder was 9,492,565l., consisting of original sums assured, 8,219,768l., and bonus additions, 1,272,797l. The amount of re-assurances in force at the same time was 548,372l. The accumulated fund is 11½ times the premium of the year, and is 30·7 per cent. of the existing assurances after deduction of the re-assurances.

The directors, in pursuance of their practice of adopting such new regulations from time to time as appear likely to be advantageous to the members, have adjusted a scheme by which the holders of policies that have a surrender value will be relieved from the consequences of accidental or unavoidable omission to pay the premium. Full particulars as to the new regulations will immediately be published. This will of necessity apply only to policies hereafter issued, but the holders of existing policies will have the option given them of coming under the new rule.

The directors cannot conclude their report without recording their sense of the loss which the society has sustained by the death of its President, the late Duke of Buccleuch and Queensberry, K.G. His Grace, who acted as President of the society since its establishment in 1831, was early enrolled as a member, and the directors cannot doubt that the influence of his name has been most beneficial to the interests of the society. The directors are pleased to be able to state that the present Duke of Buccleuch and Queensberry, K.T., has most courteously agreed to accept the office so long held by his father, and his name will be submitted to the members to-day for election as President of the society.

HOWELL'S AUTOMATIC WAVE-LUBRICATING LIFE-BUOY.—The dreadful loss of life at sea which takes place year after year has lately stirred up the maritime community to devise means and ways for at least decreasing if not altogether preventing this dreadful slaughter which has gone on so long. Among those who have made the subject a special study was a New York Nautical Gazette reporter, Mr. G. Foster Howell, who has devised and perfected a self-acting ring life-buoy, which casts oil upon a troubled sea, and makes a smooth circle, the size of Barnum's circus ring, the moment it touches the water. This pacific oil pond stands out clear and plain in the midst of the boiling and raging sea which beats all round, and proves a harbour of refuge for the unfortunate sailor who has fallen overboard. It is to him what an oasis is to the faint and weary traveller in the midst of a burning desert, scorched underfoot by the heated sand and overhead by the blazing sun. The most important feature of this invention is that a man may be seen, or rather the smooth patch of water where he is may be kept in sight, by those on board his vessel, even though she has run a couple of miles away before being brought up into the wind and hove to. Many men are drowned after falling overboard because the people on the ship lose sight of them before a boat can be lowered, but this simple and ingenious device proves an antidote to the turmoil going on all round, and provides an artificial mill pond, so to speak, where the mariner may float in safety until he is picked up. This effective apparatus will only add about \$3 more to the cost of the ring buoy, and it ought to be adopted by every yachtsman, fisherman, and ship and steamer afloat.

NEW BANKRUPTCY ACT.—The advantage of the new Act from a creditor's point of view can scarcely be overestimated, and Mr. Chamberlain has certainly entitled himself to the best thanks of the entire trading community. As an instance of the improvement we may refer to the recent bankruptcy of John Arthur Yeadon, trading as Yeadon and Co., of Leeds. The proceedings were in the County Court of Yorkshire (Bankruptcy No. 11 of 1884), and Mr. John Bowling is the official receiver. The proprietors of the *Mining Journal* were creditors for 250l., and the whole concern having been wound-up, the notice of the declaration of the first and final dividend of 7½d. in 1l.; 7l. 16s. 3d. for the debt was received by them this (Friday) morning. The receiver's total receipts from March 17 to July 3 was 136l. 10s., which represents the total estate. This was disposed of thus:—Fees, costs, and charges, under rule 105, embracing Board of Trade and Court fees, 12l. 16s. 5d.; law costs of petitioner, 10l. 18s.; charges of auctioneers, accountants, &c., 1l. 8s.; other expenses of realisation and distribution, 3l. 19s. 5d. = 29l. 1s. 10d. Preferential debts paid (including rent, &c.), 47l. 18s. 4d. Amount of dividend (7½d. in 1l.

on proofs admitted for 1919l. 15s. 6d.), 59l. 19s. = 136l. 10s. So that the creditors received more than 78 per cent. of the assets existing at the time of the bankruptcy. As a contrast to this reference may be made to the case under the old law of the late Mr. John Walker, engineer, of Cowper-street, in which the proprietors of the *Mining Journal* were also creditors. When Mr. Walker failed his total debts amounted to about 236l., and within two months his stock and plant were sold for over 400l. The creditors never received a shilling, it is believed that Mr. Walker was no more fortunate. The whole amount was absorbed in solicitors, accountants, and other fees. During several years creditors used every effort through their solicitors to recover something from those carrying on the liquidation, but they never succeeded.

PATCHING PLATINUM CRUCIBLES.—To avoid the losses incident to keeping platinum work in repair in laboratories where much fusion work is done, Mr. H. J. SEAMAN, of Catawauqua, Pennsylvania, has devised a method of patching them. He rubs the crucible and the patch, which should be of stout foil, bright with silica, or rotten-stone, welds a light platinum wire to the corner of the patch, and treats the whole for several hours with hot concentrated hydrochloric acid, washing it then with distilled water, and drying. The head of an ordinary iron rivet is rounded off by hammering, and after being sunk in a block of hard wood, is used as an anvil. The anvil is then heated to the highest point with a gas blow-pipe, fixed in a horizontal position, and when hot, the crucible is dropped on it. The patch is held over the point of operation by means of the thin platinum wire, and a few taps of a light hammer serve to fix it to the crucible. The wire is then nipped off, and the patch is firmly united to the crucible by continued tapping, the metal being kept at as nearly a white heat as possible. Mr. Seaman has now three such patched crucibles, one of which has served for at least two hundred fusions, and is still in good order.

YORKSHIRE LEAD.—A correspondent writes that the agent reports the completion of deep adit level and engine-shaft down 40 fms.; now being sunk on lode 3 ft. wide, with 1 ft. of solid metal worth about 4 tons per fathom. Ready to raise ore at from 50s. to 60s. per fathom. The engine has been set to work hauling lode-stuff, and works well.

CAMBRIAN MINES.—In reference to the communication made by Mr. Joseph Fell to the original shareholders of this company, it is stated that the meeting will be held in the Alexandra Hall of the Cannon-street Hotel, on Thursday, June 10, at noon.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, has been:—Alliance and Dublin Consumers' maximum 10 per cent., 18½; ditto, 7 per cent., 13½; Bahia (Limited) Ordinary, 24; Bombay (Limited), 6½; Buenos Ayres, New (Limited), 10½ to 10½; ditto, 6 per cent. Debentures, 1898, 100½ to 101½; Commercial Consolidated, 24½; ditto, New Stock, 135; ditto, 4½ per cent. Debenture Stock, 113; Continental Union (Limited), Original, 34½ to 35½; ditto, New, 1869 and 1872, 24½; ditto, 7 per cent. Preference, 30½; Gas Light and Coke A Ordinary, 204½ to 207½; ditto, H, 7 per cent. maximum, 147 to 148; ditto, I, 10 per cent. Preference, 230½; Imperial Continental, 193 to 194½; Rio de Janeiro (Limited), 20½ to 21. Gas Light and Coke fell about 2 per cent., but have now recovered. Imperial Continental Gas and other foreign companies very little doing and mostly easier.

INSURANCE SHARES.have, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—City of London Fire (Limited), ½; City of London Marine Insurance Corporation (Limited), ½; Commercial Union, 17½; Eagle, 6¼ to 6½; Employers' Liability Assurance Corporation (Limited), 1½ to 1½; Fire Insurance Association (Limited), 1½; Guardian Fire and Life, 58; Imperial Fire, 150; Imperial Life, 24 to 24½; Indemnity Marine, 14½ to 14½; London and Provincial Marine (Limited), 43½; Marine (Limited), 25½ to 26; North British and Mercantile, 26½ to 27; Railway Passengers, 3; Rock Life, 7½ to 7½. Imperial Fire have risen 10l. on the announcement of a good dividend. Marine companies easier.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr Wm. ANNOTT, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

THE IRON TRADE.

In their periodical review of the iron trade Messrs. BOLLING and LOWE (July 3) write:—We have been told that our reports bear a pessimistic tone, but surely we ought not to be blamed for stating our convictions, and regret that our anticipations have hitherto proved too correct. With the present low price of steel rails in the United States, the railway companies are replacing "iron lines" with steel as rapidly as their means will permit. It is computed that of the 130,000 miles of railway in the United States nearly 70,000 are iron; whilst Europe may be said to be "steel laid," with the exception, perhaps, of 10 to 15 per cent. of its whole mileage.

The Commission on Technical Education has issued its report, stating what ought to be done to remedy our defects. It becomes a question of money, and to such an extent that it cannot be expected that private enterprise can cope with the matter as promptly as necessary. The high position reached by the many technical schools on the Continent must in a great degree be ascribed to the fact that not only is the cost of attendance exceedingly low, but both teachers and pupils meet each other on the basis of an originally superior school education to that generally enjoyed by men in similar classes of life here.

When at the beginning of this report we said we saw indications of a turn in the tide we referred to the progress made in such countries as India and our Colonies, Brazil, the Argentine Republic, and other countries, which are still working their way towards obtaining the benefits of civilisation—more especially by means of rapid communication, enabling them to export the various products of their soil, which in some places would otherwise hardly be worth cultivation. Such undertakings under English control will generally yield 5 to 6 per cent. The system of light economic railways in India, through Government and private enterprise, will undergo for a number of years continual development, absorbing from 5,000,000l. to 7,000,000l. sterling per annum, and resulting in Indian produce reaching us in increased quantity, giving employment to our shipping, and India absorbing more of our manufactured goods. The leading Indian ports and inland towns will reap their share of the benefit, and in turn encourage the putting down of gas and water works, tramways, &c. Our position towards Brazil is almost identical. The effects of the introduction of railways has been so beneficial in that country that in certain provinces where the Imperial Government has exhausted its limit of guarantee allocated thereto, the Provincial Government, whose guarantee may be considered equally good, has come forward in its place, and in other instances Brazilian and English capitalists are doing the work themselves, without any guarantee, and with satisfactory results to themselves.

COPPER ORES.

Sampled June 18, and sold at Tabb's Hotel, Redruth, July 3.					
Mines.			Mines.		
Mellaneur.....	Tons.	Price.	Mellaneur.....	Tons.	Price.
ditto.....	81	£2 3 0	ditto.....	45	£1 3 6
ditto.....	78	2 10 0	ditto.....	39	1 3 6
ditto.....	72	2 15 6	South Tolcarne.....	37	3 17 0
ditto.....	70	2 6 0	ditto.....	35	6 9 0
ditto.....	68	2 3 0	ditto.....	21	4 0 0
ditto.....	65	1 12 0	New Trumpet Consols.....	23	5 6 6
ditto.....	55	2 9 6	West Poldice.....	24	2 15 6
ditto.....	52	2 10 0			

TOTAL PRODUCE.										
Mellaneur	625	£1344	19	6	New Trumpet Con.	28	149	2	0	
South Tolcarne	102	492	4	0	West Poldice	24	66	0	0	
Average standard..... £ 87 0 0					Average produce					6½
Average price per ton					£ 12 6					
Quantity of ore.....					780	Quantity of fine copper, 48 tons 5 cwt.				
Amount of money					£ 2052 5 6					

COMPANIES BY WHOM THE ORES WERE PURCHASED.			
Names.	Tons.	Amount.	
Vivian and Sons.....	155½	£ 502 14 6	
P. Grenfell and Sons.....	88 5-6	192 16 8	
Nevill, Druce, and Co.....	122	328 8 0	
Williams, Foster, and Co.....	178	427 14 6	
Elliot's Metal Company.....	89½	243 2 8	
Charles Lambert.....	146½	357 9 2	
Total.....	708	£ 2052 5 6	
NO SALE on Thursday next.			

C. PASS AND SON, BRISTOL.

ARE BUYERS OF
LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,
ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES &c.
and DROSS or ORES containing
COPPER, LEAD, AND ANTIMONY.

GEO. G. BLACKWELL,

26, CHAPEL STREET, LIVERPOOL.
HANDLES
MANGANESE, BARYTES, SPARS, and ALL ORES on SALE
or PURCHASE.

ASSAYING.

Mr. EDGAR JACKSON,

(Assoc. R. S. M., F. I. C.)
RECEIVES PUPILS, and ASSAYS ALL KINDS OF ORES.
106, QUEEN VICTORIA STREET, LONDON, E.C.

JOHN LYSAGHT (LIMITED),

BRISTOL SPelter WORKS,
BUYERS OF
ZINC ASHES, ZINC OXIDE, HARD SPelter,
CALAMINE, &c.

JOHN M. STUART, CONSULTING MINING ENGINEER, ANALYST AND ASSAYER,

OFFICES:
11, QUEEN VICTORIA STREET, LONDON, E.C.

MESSRS. J. AND J. BANNER,

BROKERS,
LEITH OFFICES, LIVERPOOL.

BUYERS AND SELLERS OF MINES, MINERALS, &c.
COMPANIES FORMED ON EQUITABLE TERMS.

J. A. JONES,

MINING ENGINEER,
GIJON (ASTURIAS), SPAIN.

Mines inspected and reported on. Assays and valuations effected.
Has on hand offers of Mines of Copper, Calamine, Blende, Phosphate
of Lime, Tin, Lead, Iron, Manganese, and Manganiferous
Iron Ores.

SCOTT AND WYATT,

STOCK AND SHARE DEALERS,
BALTIC CHAMBERS,
108, BISHOPSGATE STREET, E.C.

ALL DESCRIPTIONS OF SECURITIES DEALT IN AT CLOSEST PRICES.
BANKERS: NATIONAL PROVINCIAL BANK OF ENGLAND (Limited).

NICKEL AND GERMAN SILVER WORKS.

GERMAN SILVER, SHEET and WIRE, suitable for
HOME and all FOREIGN MARKETS.
BARKER AND ALLEN,
OOZELL STREET NORTH, BIRMINGHAM.

WOOD AND TREHERNE,

MINERAL BROKERS AND DEALERS IN MINING PROPERTIES,
ROOM 55, GILFILLAN BLOCK (BRITISH VICE-CONSULATE),
ST. PAUL, MINN., U.S.A.,

Offer to the English Investing Public rich developed and undeveloped Gold, Silver, Copper, Iron, and other Mines and Mineral
Lands in all parts of the United States and Canada.

These properties have been placed in the hands of Messrs. WOOD
and TREHERNE for IMMEDIATE SALE.

Correspondence with this view invited from Capitalists and Pro-
motors in London and elsewhere.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 30 Years),
Can SELL the following SHARES:—

20 Almada.....	100 Espanga.....	50 Prince of Wales.....
41 Bratsberg.....	20 Leadhills.....	35 Potosi.....
50 California Gold.....	50 La Plata.....	10 Roman Gravel.....
40 Callao Bis.....	40 Mounts Bay.....	23 Ruby.....
60 Chile Gold.....	50 Montana.....	10 Richmond.....
203 Chontales.....	50 New West Caradon.....	30 South Caradon (Ltd.).....
150 Colombian.....	150 Nouveau Monde.....	20 Tolima A and B.....
20 Colorado.....	50 Organon Gold.....	50 Tregontres.....
30 Devon Consols.....	30 Old Shepherds.....	15 United Mexican.....
40 East Rose.....	20 Oscar Gold.....	25 West Crebor.....
50 Frontino.....	15 Panulillo.....	10 Western Andes Gold.....

VICTORIA GOLD (Venezuela).—Business in the shares either as buyer or
seller.
PURCHASES FOR FORWARD DELIVERY AT SPECIAL PRICES ON
RECEIPT OF DEPOSIT OF 20 PER CENT.
BANKERS: ALLIANCE BANK (Limited)

**MESSRS. PENNINGTON AND CO., SWORN BROKERS AND
SHARE DEALERS, 13, MOORGATE STREET, LONDON, E.C.**

BUSINESS in all DESCRIPTIONS OF STOCKS, MINING and other SHARES.
ESTABLISHED 1869—BANKERS: ALLIANCE (Limited).

ESTABLISHED 1868.

MESSRS. CUNLIFFE, ENTWISLE, AND CO.,
FINANCIALISTS,
MINING AND CONSULTING ENGINEERS,
MINERAL ASSAYERS,
STOCK AND SHARE BROKERS,
77, BLOOMSBURY, OXFORD STREET; and 2, UPPER BROOK STREET,
MANCHESTER.

MINING OFFICES, 1, ST. MICHAEL'S ALLEY, CORNHILL,
LONDON, E.C.

ESTABLISHED UPWARDS OF FORTY YEARS.

MESSRS. WATSON BROTHERS, in referring to their public
Circular in the *Mining Journal*, would also observe that they
BUY and SELL SHARES at the net market prices of the day
in all well-established and respectable Mining Companies; also in
English and Foreign Funds, Railway Stocks, &c

RICHMOND CONSOLIDATED MINING COMPANY (LIMITED).

Notice is hereby given, that the ORDINARY GENERAL MEETING of the
shareholders of the Richmond Consolidated Mining Company (Limited) will be
HELD at the City Terminus Hotel, Cannon-street, London, on TUESDAY, the
8th day of July, 1884, at Two o'clock in the afternoon, to receive the report of
the directors and the statement of accounts for the year ending 29th February,
1884, and to transact the general business of the company.

The Transfer Books will be closed 7th and 8th July.
By order of the Board, HUBERT AKERS, Secretary.

44, Coleman-street, E.C., 27th June, 1884.

LEAD ORES.			
Date.	Mines.	Tons.	Price per ton.
July 1	Isle of Man.....	120	£ 8 12 0
			Weston, Son, and Co.

BLENDE.			
Date.	Mines.	Tons.	Price per ton.
July 1	Cwmystwyth.....	75	£ 3 1 0
			J. F. Kimmel.

BLACK TIN.			
Date.	Mines.	Tons.	Price per ton.
July 1	Phanix United.....	30	£ 46 15 0
			—

GEORGE ELLIOT & CO.,
(GEORGE ELLIOT & Co. since 1864, and previously
GLASS, ELLIOT & Co., Makers of the First Atlantic Cable).
WIRE ROPE MANUFACTURERS.
LONDON OFFICES—
23, Great George St., Westminster, London.
WORKS—
BUTE DOCKS, CARDIFF.

SPECIAL IMPROVED PLOUGH STEEL,
PATENT STEEL AND IRON WIRE ROPES
For Colliery, Mining, Agricultural, and General Purposes.
ROPES FOR AERIAL TRAMWAYS,
SHIPS' RIGGING.
COPPER LIGHTNING CONDUCTORS,
GALVANISED STRAND,
SPECIALLY FLEXIBLE ROPES, &c., &c.

Care is given to ensure the Ropes being constructed in the way most suitable for their particular work, and by the use of specially selected and tempered metal, the greatest possible uniformity is obtained.

Just published, crown 8vo., price 3s. 6d., cloth (postage 5d.)

THE BLOWPIPE IN CHEMISTRY, MINERALOGY, AND GEOLOGY. Containing all known methods of Anhydrous Analysis, many Working Examples, and Instructions for Making Apparatus. By Lieut.-Colonel W. A. ROSS, R.A., F.G.S. With 120 Illustrations.

"To students of chemical and mineralogical analysis the volume is indispensable, adequate, and invaluable."—*Colliery Guardian*, June 27, 1884.

CROSBY LOCKWOOD & Co., 7, Stationers' Hall-court, London, E.C.

Just published, crown 8vo., price 12s. 6d., cloth (postage 7d.)

A TREATISE ON EARTH AND OTHER MINERALS AND MINING. By D. C. DAVIES, F.G.S. Uniform with, and forming a Companion Volume to the same Author's "Metalliferous Minerals and Mining." With numerous Illustrations.

CROSBY LOCKWOOD & Co., 7, Stationers' Hall-court, London, E.C.

Notices to Correspondents.

SHAREDEALING AT SECRET PRICES.—The not advertising the prices of shares by dealers detracts much from the value of their advertisements, contracting as it does the market for shares, putting outsiders at a great disadvantage. It may be to the advantage of the Circular men; but the general public are rather suspicious that it is not done for their benefit, and it is the public who must give life and tone to a business.—E. C.: *Winterton*.

SHARE QUOTATIONS AND SALE PRICES.—I regret that the sharedealers do not now affix prices to the shares they advertise, as it afforded the sole protection which the public had against being charged too high a price for any shares they may feel disposed to purchase. The so-called market quotations in the centre page and in the Share List should never be relied upon, as the shares marked can almost always be purchased much lower if cash is offered. The present system throws into the hands of Circular men, who inundate us with their opinions.—R. N.: *Sheffield*.

ADVERTISING PRICES.—"R. N.," "E. C.," and others.—Your complaints are similar to those which have been received every week since the system of advertising prices was discontinued. There can be no question that the sole object of omitting them is "to force up prices," and the more worthless the shares to be sold the greater is the desire of those manipulating them to keep the real prices secret. We do not know that "most of the shares quoted in your Mine Share Market report and Share List can be bought for ready money at half the prices named;" but they can all certainly be purchased very much lower than quoted. The Editor is not responsible for the withdrawal, and the market is by no means unanimous. Mr. W. H. Bumpus was strongly opposed to the withdrawal. Mr. J. H. Crofts expressed indifference, and one or two others gave their adhesion only on condition that the dealers were unanimous. It would be invidious to give you a list of those who may safely be dealt with," but Messrs. Bumpus and Crofts would certainly be included in such a list, whilst several of those most opposed to advertising prices would be excluded. The non-advertising of prices will probably, as in the case of previous attempts in the same direction, be a merely temporary expedient, and in the meantime the public have the remedy entirely in their own hands. They should, whilst the Protection system continues, purchase no mine share whatever except for immediate delivery, and to be paid for by non-negotiable bankers' draft at three days' sight, such draft not to be sighted unless accompanied by the transfer of the shares purchased. Some shares are now formally quoted 1½, 1¾, in the market, which can be purchased at 7s. 6d. of all firms but one, so that the public really require the protection which open competition gives them.

COL. ROSS'S BLOWPIPE.—According to your instructions, I have read Col. Ross's letter and the review of his book; I suppose you wish an answer for him. Pray let me offer him my most sincere apologies. I misunderstood his book altogether. I thought it was intended for students, but I now see he merely published it for students to correct—by way of amusement, I suppose. When the mathematics are corrected, with the assistance of a child's book of arithmetic (as it may be assumed that he wishes the other portions to be put right where necessary by the aid of other similarly elementary works), the book will be excellent. I am glad the gallant colonel agrees with me. As to Colonel Ross's "final sentence," "I think it may be granted, as I do not think his is a case for a court martial and capital punishment, as his aim may have been true enough for an artilleryman if not for a scientist. If the work be the result of 25 years' incessant labour, as he states, all I can say is that it reminds me of the fable of the mountain and the mouse, Bruno Kerl notwithstanding. I have said that the design of the work is excellent, and repeat it; that I do not like Bruno Kerl's expression unqualified approval of it as it stands may be because I have read the book, and understand English better than German.—REVIEWER.

THOMAS GILCHRIST PROCESS.—Can any correspondent favour me with replies to the following questions?—1. Has Messrs. Thomas and Gilchrist's method for the dephosphorisation of iron ore met with any practical success?—2. Has it been improved upon by themselves or by others?—3. Is it (or any modification of it, or any other subsequently discovered method for the obtaining of the same result) at present employed anywhere?—G. K.

DIRECTORS AND WRECKERS.—"P. J. S." (Dunfermline).—If you "indulge a suspicion that you have been victimised—swindled—perhaps it would be well to answer you as though you were a Frenchman who had begged one's pardon: "A qui la faute?" If you really require answers to the questions put, it is indisputable evidence that you have invested and recommended recklessly, and that neither you nor your clients deserve pity. To hand over 3d. per share to a wrecker would scarcely improve your position. Shareholders do not always appreciate the fact that it is not the shareholders' interests that the wrecker seeks to protect; but that his sole object is to live upon the funds which the shareholders' vicious and revengeful nature (the reaction from their normal stupidity) may induce them to supply. Your questions—1. Is it true that the directors have no stake in the company beyond 500 fully paid shares presented to them? Can be answered by inspecting the register.—2. Is it true that the directors are remunerated at the rate of 200l. per annum? Can be answered by reading the Articles of Association, which you should have done before you took shares.—3. Is it true that the same person acts as solicitor and attorney both for the vendors and the company? Suggests the reply that until solicitors are as rare as doves, one solicitor would scarcely accept fees in the same case from plaintiff and defendant, or from buyer and seller.—4. Is it true that of the 35,000l. shares subscribed and paid for only 4000l. to 5000l. is available as working capital? Can probably be answered by the judicious application of a little arithmetic to the prospectus. Discussion of all subjects affecting companies and shareholders is invited; but when writers do not keep their temper their effusions cannot be inserted.

ROYAL UNIVERSITY OF MINING AND SCIENCE.—"R." (Sheffield). Personalities must be avoided. Attack the system as much as you please; but there has, thus far, been no evidence given that anyone connected with South Kensington or Jermyn-street has, in his own judgment, acted except for the benefit of the school and of students; and although rumours are numerous, they appear to us to be utterly unsupported by anything more substantial. In devising a system of education opinions will conflict even more than interests, and in most cases the pugilistic faculty appears to develop with a man's progress in scientific knowledge. It would, perhaps, be well to leave the matter in abeyance until towards the close of the vacation, by which time some common basis of operation may, perhaps be found.

RECEIVED.—"W. A. R.": Answered by post.—J. M. and Sons (Denver): If promise be performed it will be satisfactory.—"M. W. B." (Plymouth): Not received until 5.30 p.m. Friday; cannot again be inserted so late.—Miss V. M. Skinner (Friendly Letter Mission), 5, St. James's-square, Bath: Your letter to quarrymen, colliers, &c., is no doubt excellent, but would be altogether out of place in the *Mining Journal*, divinity not being one of the sciences to which it is devoted. Perhaps some readers of the *Journal* will purchase 6d. packets for distribution; for this reason we give your address in full.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, JULY 5, 1884.

INSPECTION OF MINES, AND THE GOVERNMENT.

The greatly increased jeopardy in which the lives of the working colliers would be placed, and the numerous other evils which would inevitably result from any legislation which would transfer the responsibility for the safe and efficient management of mines from the mineowners' servants to State officials, have constantly been pointed out in the columns of the *Mining Journal*, and it is indisputable that the accuracy of or justification for this view has been acknowledged by all who are competent to pronounce an opinion upon the subject, whether representatives of the State, of the mine-owners, or of the working miners. The late MATTHIAS DUNN, HERBERT MACKWORTH, and others among the earlier Government Inspectors, were unanimous in their condemnation in these columns of anything which should place the safety of 2000 or 3000 collieries (each requiring the application of some special local knowledge to prevent accident) and the lives of 200,000 or 300,000 colliers at the mercy of a few dozen Government Inspectors, who could not possibly possess more than a very limited knowledge of any given pit. The present staff of Government Inspectors—all men of sound practical knowledge and experience—are all most careful to do nothing that could be construed into an interference with the management of the mine, although they are quite ready to throw out such hints as will enable a manager to judge where matters might be improved. The colliery viewers have without exception maintained that safety could only be hoped for by leaving each particular pit in the undivided control of men who were familiar with every fathom of the workings and with all the strata in which those workings were carried on. And even the late ALEXANDER MACDONALD—the most able representative the working miners ever had, a man who had worked in the mines and who must be admitted to have displayed considerable judgment—devoted his lifetime to throwing the whole responsibility for the safety of the pits upon the owners and their immediate agents.

From some time before the legislative measures of 1860 until MACDONALD's death the Editor was always upon terms of what might be called bellicose friendship with him, but he always advocated MACDONALD's view that it was by raising the standard of competency amongst the officers in the pit, and by that alone that the safety of the men could be increased. The "certificated manager" system—which was almost due to MACDONALD, was a step in this direction and one which cannot be too highly praised, and we think that the working colliers may be congratulated that they and their sons are now, through the operation of that principle, so much better educated in technical matters connected with their avocation that their status and their safety are much improved. It is, therefore, most surprising that a man so well acquainted with all the circumstances of the case as Mr. THOMAS BURT, M.P., should advocate the undoing of all the useful work which, through MACDONALD, has been done, and attempt to place the collieries under the control of a mere handful of Government officials, who could not be expected to become acquainted with the special peculiarities connected with each individual pit. It is because we feel that in this case Mr. BURT—we say nothing of Mr. BROADHURST because he is not a miner—has acted wrongly through failure to comprehend the various phases of the question as accurately as MACDONALD did that we congratulate the working miners that their deputation to the Home Secretary on Wednesday was altogether abortive. The deputation explained that their object was to urge the necessity of the appointment of additional Inspectors of mines, and their memorial set out that although the production of coal was last year one-third greater than in 1872, there had been no increase in the number of mining Inspectors. The tendency of the present day was to engage in operations which rendered inspection much more important than formerly, and it was represented that the pressure of duty did not enable inspectors to give to individual cases that attention which was desirable in order to secure as far as possible, immunity from accident. It was, therefore, asked that there should be a reasonable increase in the number of Government Inspectors.

The reply of the Home Secretary was extremely polite, of course, but briefly stated, it was to the effect that the deputation were wrong in their premises, and that consequently their conclusions which were based upon them were erroneous. Sir WILLIAM HARCOURT said:—I have had great pleasure in meeting this deputation—first of all because it is so representative of interests which are of great importance to the country. Everybody knows that all the motive power of all the industries of the country is mainly to be found in coal, and that therefore those who get the coal are among the chief springs of the industry and wealth of this country. I am also aware—I am obliged to be so officially—of the great risks and dangers of that trade and the melancholy loss of life that frequently occurs in it. Now, with reference to what has been said as to inspectors, I have myself sometimes thought that there was a very reasonable claim for an increase of inspection, for this reason—that unquestionably the output is much larger, the workings are more extensive, the depths at which the coal is obtained are greater than they used to be. And, therefore, on the same ground that you increase your staff in any other department of business, your police in towns as they grow, and so forth, there is a reasonable foundation for this demand. You will understand, however, that first of all I have no right individually (because I am not the department that provides the money) to pledge the Government. It is very easy to spend money, especially if you have not to find it; and, therefore, of course, I must reserve to more responsible authorities any pledge on that subject, merely having expressed my view as far as it goes. There is another thing in regard to which I must ask Mr. BURT and Mr. BROADHURST to help us, because we are constantly attacked in general terms for the increasing expenditure of the country, and it is considered a great crime of the Government. They look through the figures and say, "Why a few years ago the expenditure of the country was so and so, and now it is much larger," and the increase is put down to the profligate extravagance of a reckless Government. After all, according to the old phrase, "Many a little makes a mickle," and it is these constant demands—most of them, I am bound to say, very reasonable—which increase expenditure; and when they come to be added up together you must not be surprised to find that the charges upon the public expenditure and public taxation go on gradually increasing. What you ought to see is that you get your money's worth, and, if there is an increasing expenditure, that it is expended on worthy objects and for proper purposes. There has been a demand made that these inspectors, or a portion of them, shall be practical men. I think that Mr. BROADHURST will hear me out in saying that I have not been insensible to that, and that in other departments of inspection I have shown that I desire, first of all, that men practically acquainted with the work should have a share in it; but I have another and a larger reason—I think that all classes in the community, and especially those who themselves take part in those industries, should have a share in the Civil Service of the country; and I think that the greater portion of the factory inspectors that I have appointed in this country have been from men of that class.

In saying this the Home Secretary went quite as far as any reasonable man could expect him to go; in fact, some of his questions raise important issues, which if fully discussed would not commend themselves to the working men generally. The deputation demanded that the additional inspectors should be "practical men," and the Home Secretary infers in his reply that in other departments of inspection he has met their views. This is not so. Mr. BURT and his party advocate the appointment of inspectors from the ranks of the working men, and simply because they are working men, which is one of the most dangerous recommendations that could be made.

These working-men Inspectors would be as objectionable as the *Pairs à la boucherie*, of whom more is to be heard next week. Both common seamen and passengers would prefer braving a storm on the ocean with the ship in the control of a duly certificated captain or first-mate than if it were in the control of the strongest A.B. on board, but Mr. BURT thinks the equivalent of the able-bodied seaman quite good enough to look after the life of miners. The Home Secretary, as, indeed, might naturally have been expected evinces more consideration for miners' lives than do their own representatives, for he continued:—I must ask you not to expect the Government to do the work which ought to be done by others. Do not expect too much from the Government. If the Government were once to undertake the main responsibility—the daily, hourly responsibility which can alone make a trade of this kind safe—they would utterly fail. They would destroy the responsibility of those people upon whom it must eventually rest, because once allow the owners and managers of mines to say, "We have had an Inspector here; it is not our fault, and he has approved of what is done"—it would destroy, in point of fact, that responsibility which must be the main safeguard of carrying on a business of this description. Take the great railways of this country. That, after a fashion, is an extremely risky trade. There are a great many lives lost every year—the lives of passengers, and still more of the men employed to work the lines. A single badly-built bridge, a single piece of line out of repair, a single plate improperly laid, a single axle not tested and looked after—may cost the lives of scores of men. But the Government cannot undertake to look after all the lines in the country; they cannot undertake to test or to examine the permanent way. They cannot undertake to see that the wheels and the engines are in proper order; that responsibility must rest on those who are conducting the trade—both the employers and the employed. Therefore you must not expect that Government inspection can take the place of that responsible care which must devolve upon the parties who have charge of the mines, and it would be a very great evil if you went so far as to destroy that responsibility, because you all know, especially persons from South Wales, where there are fiery mines, that a mine that is safe to-day may be very dangerous to-morrow, and that after the Inspector is gone a single pick may bring out a piece of coal which may let out gas and make absolutely dangerous the mine which a day or a week before was safe as far as human skill and foresight could make it. There is another thing which I am sure you will excuse me for speaking quite frankly about, and in which I would ask the miners to help us. I have had—I will not refer to particular men—cases where the Inspectors have reported to me that certain precautions were necessary, such as locked lamps, and of course I had no other course left me but to say that the Inspector had reported to me that locked lamps were necessary, and that the locked lamps must be used in place of the unlocked lamps. Well, that order has given great dissatisfaction, and I have found it resisted by the men who work in the mine. However, I am very glad to hear from you that you are not dissatisfied with the work, so far as it goes, of the existing Inspectors, and I shall convey that sentiment on your part to them. As I told you before, it would not be proper even with reference to Parliament, to pronounce a final decision before a discussion comes on, because a discussion in Parliament ought to be regarded as a free discussion; but I hope that you will not consider that the remarks I have made are unfavourable to the views that you entertain.

To pretend to regard the present number of Inspectors—14 chiefs and 12 assistants—as precisely what it ought to be, and to argue therefrom that it would be objectionable to appoint one or two more or to lessen the number should the work diminish, so as to justify such a step, would be absurd; but what we maintain is, that the Government officials must merely inspect, and not manage, the mines under their control; and that if additional appointments be necessary they should, in the interest of the working miners themselves, be made from the same class of men as those now in office, and that the selection should not be made, as Mr. BURT and friends seem to wish, from a class whose sole qualification for the position is that they claim (often with very little justification, it is true) to be working men.

MINING AND DOCK ENTERPRISE IN WALES.

After a most costly and stubbornly-fought contest, the Select Committee of the House of Commons (Mr. POLJAMBE, Chairman) has passed the preamble of the Barry Dock and Railway Bill. This scheme is of the most vital importance to the colliery proprietors of the whole of South Wales, not so much because of the magnitude of the works proposed to be carried out, but because of the results which will inevitably follow its successful completion. In proof of the immense stakes which were pending on both sides we may state that the proceedings before the Committee occupied no less than thirty-three days, and the array of counsel both for and against the scheme was really formidable. For the promoters of the Bill there appeared Mr. PEMBER, Q.C., Mr. JEUNE, and Mr. BALFOUR BROWN. For the Marquis of BUTE (against the Bill) Mr. RIDDER, Q.C., Mr. W. H. MICHAEL, Q.C., Mr. O'HARA, and Mr. T. W. LEWIS. For Mr. TUDOR CRAWSHAY, Mr. B. FRANCIS WILLIAMS. For the Taff Vale Railway Company, Mr. POPE, Q.C., Mr. LITTLE, Q.C., and Mr. SAUNDERS, Q.C. For the Rhondda Junction Welsh Coal Company and the Lewis Merthyr Navigation Colliery Company, Mr. SUTTON. For the Pontypridd, Caerphilly, and Newport Railway Company, Mr. HUNTER RODWELL, Q.C., and Mr. MILVAIN. For the Rhymney Railway Company, Mr. BOMPASS, Q.C. For the trading vessels and tug-boats and pilots of the Bristol Channel, Mr. G. F. CLARKE. The Great Western Railway Company and the Newport Docks and Railway Company also presented petitions against the Bill. The fact of such an array of counsel appearing before the Committee is proof of the immense value attached to the scheme; and when it is remembered that last year a Parliamentary Committee was no less than forty-three days in investigating the scheme, with an equally imposing array of counsel, some idea can be entertained of the vast amount of money expended in obtaining the object. Money was, in fact, no object—some of the most wealthy and extensive colliery proprietors of South Wales, on the one hand, were pitted against the Marquis of BUTE, with his fabulous wealth, and the Taff Vale Railway with its 18 per cent. dividends and other wealthy proprietors, on the other side.

The scheme, which is practically the same as carried last year before the Committee of the House of Commons, but thrown out by the House of Lords, is for the construction of very extensive docks at the Island of Barry, some six or eight miles from Cardiff, and connected with the Taff Vale Railway at Penarth and Treforest, with a line up the Rhondda Valley. When the scheme was first launched a sum of no less than 600,000l. was voluntarily subscribed in a very short time, and double that amount would have been forthcoming had it been required. The contention of the promoters of the Bill is that consequent upon the rapid expansion of colliery operations in the South Wales district, and the prospects that this expansion will proceed even more rapidly in the future that they cannot get the facilities which they require for their business in the Bute Docks, at Cardiff, nor can they get such concessions in the matter of freights for the carriage and shipment of coal as they think desirable, or, in fact, have a right to demand. After numerous attempts to get further and adequate dock extension in the port of Cardiff, and a reduction of shipping rates, a considerable number of the largest colliery proprietors banded themselves together to construct docks at Barry, with the necessary railway connection with the great Rhondda coal basin, and thus to break the pernicious monopoly of the docks in Cardiff, and the carriage of coal by the Taff Vale Railway. We suppose everything is fair in love and war, so the promoters of the Bill some two or three years ago appear to have formed "a coal ring," their object being by withdrawing the traffic from the neighbouring docks of Newport, Swansea, &c.—or rather declining to ship their coal at these ports—crowded the docks at Cardiff to such an extent that they became congested, and proper dispatch became almost impossible. We say it is contended that this was the object of the "coal ring," and some colouring is certainly given to this contention from the fact that the capacious new docks at Swansea, opened some three years since for the express accommodation of the Rhondda coal trade, has been and still is comparatively empty;

Torquay will be visited on Wednesday; the party will then meet the director (Mr. Pengelly), who will conduct them along the coast to Hope's Nose, 2 miles east, the northern horn of Torbay, pointing out the submerged forest on Torre-Abbey sands; the place of junction of the trias and Devonian limestone; the contortions in the Torquay limestone; the slaty cleavage at Meadfoot; the raised beach at Hope's Nose; and the contorted and cleaved limestone near it. Should the weather permit, arrangements may be made for going from Torquay to Hope's Nose by water. In this case the party might be able to reach the fine junction of the trias and Devonian in Babacombe Bay, touching perhaps at the trap rock of the Black Head. High water at 4.45 P.M. On their return to Torquay, the party will inspect Kent's Hole, from which so many mammalian and human industrial remains have been obtained, under the superintendence

of the director, and, if time permit, a visit will be paid to the Museum of the Torquay Natural History Society, where a fine collection of them is to be seen.

Opportunity will be afforded on Thursday morning for a second visit to the Museum of the Plymouth Institution, or to the quarries adjacent to the town. The members will leave Plymouth (Millbay) by the 11-20 A.M. train for Bickley Station (7 m. N.E.), and walk by the Dewerston, Shaugh, Cadover Bridge, and Sheepstor, to Dowsland Barn Station (16 m. N.E.) returning thence at 6-39 P.M. The Dewerstone is the boldest example of semi-columnar granite on the borders of the moor, and the adjacent slates illustrate contact metamorphism in various stages. Many varieties of granite and of elvan may be noted *en route*, and the collections of weathered granite blocks, locally known as the "clatters" of the Tors, studied to advantage. On Friday the party will proceed by train to Lydford (19 m. N.). Visit the Gorge (1 m.), by permission of Mr. Radford, and walk to Brent Tor (3 m.), where there will be ample time for the study of volcanic rocks. Returning to Mary Tavy Station (4 m. S. of Lydford) by way of Wheal Friendship, then will inspect some of the rocks, described by Mr. Rutley, in that neighbourhood. Leaving Mary Tavy at 6-44 for Plymouth. And on Saturday the members will leave Plymouth by conveyance at 9 A.M. for Lee Moor (8 m. N.E.), to inspect the china-clay works there, by permission of Mr. W. L. Martin. In addition to the works, there are some very interesting illustrations of the heaves of lodes by a flockan, and the changes produced in the backs of the lodes in the quality of the clay, &c. Returning to Plymouth in time for the 2-8 P.M. London train.

GREAT FIND OF COAL—THE LLYNVI COMPANY'S MINERAL ESTATE.

The winning of the Nine-feet seam of coal in Moffatt's Level, on the Cwrtymwnws Farm, Maesteg, will we trust, says the Central Glamorgan Gazette, be a real turn in the tide for the Llynvi and Tondou Coal and Iron Company, and the dawn of prosperous times for the numerous employees, and the inhabitants of Maesteg. This important town, if even limited to the operations of the Llynvi Company alone in the active development of their vast mineral estate, would be destined to become as famed for its enormous output of coal as that which at present is enjoyed by the Rhondda Valley. But, as our local readers are aware, there are other coal fields at work in the valley, which will add to the amount of fuel placed on the market, either for commercial or domestic purposes.

It is, we think, a matter of regret that Bridgend cannot share more particularly in the results of mineral industries which are all about to be developed in the Llynvi, Ogmogre, and Garw Valleys. Nearly a twelvemonth has elapsed since the townspeople of Bridgend were worked up to a laudable state of enthusiasm at the passing of the Ogmogre Docks and Railway Bill into law. Since then the local public, with more or less patience, have waited to hear something of the probable starting of that enterprise. Those who have followed the evidence given at the enquiry just closed before a Parliamentary Committee anent the Barry Docks Bill, will remember the evidence of Mr. W. T. Lewis, who stated that the natural port for the produce of Maesteg and adjacent mineral valleys was at Ogmogre. But Mr. Pember, in his closing address for the Barry promoters, stated that the Ogmogre was a dead letter; this, we trust, is not an accurate view of the case, though we cannot help fearing that the probable passing of the Barry Bill into law will be prejudicial to the interests of the Ogmogre.

But this *en passant*; what we wish now more particularly to touch upon is the changed prospect at Maesteg, consequent upon the striking on the Nine-feet seam of coal, and we congratulate the company and the able executive on the gratifying result of their labours after years of unsuccessful operations. Before making any further allusion to this auspicious event, it may, perhaps, be of interest to touch upon the early history of this company, which has seen many changes of directorate, management, and fortune. The Llynvi Company has passed through many periods of depression and discouragement since its first formation in 1838, under the title of the Cambrian Iron and Spelter Company, with a capital of 300,000*l.*, in shares of 25*l.* each, and with power to double the capital by the issuing of additional shares. The first directors were Messrs. Wm. Borradaile, Philip Courtenay, M.P., Niven Kerr, John Melville, Isaac Nicholson, H. L. Smale, Wm. Shadbolt, and Thomas Stook. As the title of the company implied, the prospectus then issued dealt chiefly with the manufacture of iron. The ironworks have not invariably turned out a profitable concern, from the early formation of the company to the present time. Many were the changes; the last being the amalgamation of the Llynvi Tondou, and Ogmogre Ironworks and Collieries, and their acquisition by a limited liability company. The changes have not always brought about encouraging results; and about six years ago, at a period of great depression in the iron trade, many ironworks were stopped which have never been restarted; the company apparently despairing of receiving any return from the works, seriously entertained the idea of their abandonment. The threatened calamity was, however, averted, other counsels prevailed, and it was agreed that a fresh trial should be given. Mr. W. Blakemore was entrusted with the herculean task, and the onerous character of the duty imposed upon that gentleman cannot be easily estimated. He began a thorough inspection of the Llynvi Collieries, and the Ironworks both at Tondou and Maesteg received his close personal attention. By rigid economy, prudent management, and constant personal superintendence, Mr. Blakemore in the first year of his administration earned a considerable surplus to the company and the thanks of the directors. The company were encouraged to advance capital for the development of the mineral riches of their landed property, and a sum was voted for sinking operations at Coegnant. The success of Mr. Blakemore in that undertaking has exceeded the most sanguine expectations. Now there is another richer mineral property ready to be worked, and its development will bring prosperity to the shareholders and the district—a circumstance of general congratulation.

It was only after a long time of working through faulty ground that this seam of very superior steam coal at Cwrtymwnws Farm was reached in very good form. It is now, we believe, only a matter of time in the supply of engines and other means for the opening of the work to make the property yield an almost unlimited quantity of this excellent and marketable steam coal. The estate in which this valuable coal is found is a splendid property of about 2000 acres of the best steam coal in the valley; and we understand that most of this land is the absolute property of the company. The management have surmounted difficulties of no ordinary kind in mining engineering in their efforts to get at the coal. It is reached by a slip or dip of several hundred yards, and was first worked down under Mr. Colquhoun's able management, when very serviceable coal was obtained, but subsequent managers resolved to abandon the working of that seam, the quality of the coal not sufficiently recouping the outlay in obtaining it. Thus it was determined to drift lower and in other directions to get at the Nine-feet seam—steam coal—and so evade the frequent faults, which enhanced the cost of getting the fuel. The progress was slow, and the result of operations for a length of time sufficient to discourage the most sanguine, but the management felt confident, and the result is a proof of the soundness of their judgment and the correctness of their calculations. They have now opened up a splendid and valuable property, and prospective employment of a large number of hands.

This colliery, known as the Maesteg Deep, is situated near the locality of the old Maesteg Works, and is in the centre of the district, and of convenient access to the Great Western Railway (Llynvi and Ogmogre Railway section). It is about a mile distant, in a southerly direction from Coegnant Pit, which was recently sunk and has turned out very favourably in regard to the finding of a variety of seams of steam coal, all of marketable quality; the output being weekly on the increase. There are at times slight hindrances at the Coegnant, owing to an insufficiency of wagons to meet the large quantity of coal brought to bank. The machinery and appliances for bringing the coal to the surface are powerful, and of modern construction; but better facilities, as above indicated, are required at the pit's mouth.

The operations of the company are not limited to the working of steam coal, as excellent house coal is worked at No. 9 level (Maesteg) and No. 11 (Spelter); the latter in the upper district. This seam is called the Victoria, a name gained owing to the circumstance that the working was commenced about the year of Her Majesty's accession. At No. 9 is also worked the Caedafid seam, known locally as "the Big coal"; it is of great heat-giving power and marketable. This last-named coal was the first worked in the valley at a point in Twynwirth Mountain. In times past—about the year 1750—coal was worked on the crop, and fetched from here and conveyed to long distances in various parts of the county.

We have been able to give a gratifying account of the prospects of the coal trade on the Llynvi estate, and we wish that we could tell as pleasant a story of the condition of the ironworks. In the face of extreme depression we are unable to do so. The iron trade is now said to be lost to the country, and the acute competition carried on by foreign firms has compelled many English ironmasters to close their works. The West Cumberland Iron and Steel Works have given notice to stop the iron department for a time, owing to general slackness; similar notices were given to all hands at the Osier Bed Iron Company Works, Wolverhampton—one of the oldest in the district. The same causes have operated against the Llynvi Ironworks, and as we have already stated notices have been posted to terminate contracts; those notices expire this week. Doubtless under the present management, and with a revival of trade, this ironworks may be again made a source of profit.

The operations carried on at the slip, and the finding of the coal were conducted by Mr. Wm. Tambllyn, the colliery manager of Caedafid Colliery. Mr. James Tambllyn, his brother, is the principal colliery manager under the company over the Ogmogre and Llynvi Collieries. Mr. Emanuel Rees is the manager of the ironworks department, comprising the blast-furnaces and forges and mills. Mr. Wm. Blakemore is the general manager of the extensive works of the company at Llynvi (Maesteg), Tondou, and Ogmogre. The company may be considered fortunate in having men of such ability and earnest purpose on their staff of managers; and we can only, in conclusion, express a hope that the new era of prosperity on which the company seem about to enter will be long and uninterrupted. Mr. J. J. Smith, the managing director, who has stuck manfully by the company in the time of its vicissitudes, ought to be included among the band of earnest workers.

SELECTION OF MINING MACHINERY—PRACTICAL PRELIMINARY TESTS.

The importance to mining engineers and others interested in mining of having proper facilities for practically testing samples of ore which they intend working on a large scale, can easily be understood to be very great, when it is considered that, in the case of many metallurgical processes, no absolutely reliable calculations can be based on laboratory tests, and the engineer having charge of the selection of the process to be used is obliged to trust to his judgment and experience to determine the results to be expected, while the mineowners must accept an opinion where they should be supplied with facts. To establish experimental works having machinery, adapted to every class of ore, of precisely the same size as that used on the mines, and to attempt to bring sufficiently large quantities of ore from any distance to charge such machinery would be out of the question, and several attempts have been made to substitute apparatus to work conveniently small quantities of ore under as nearly as possible the same conditions as would exist in working on a large scale. But it has been found that a sample of ore run through a small working model, although indicating, as in the laboratory experiment, the possible results, is often misleading and never quite accurate, and, in the case of very low grade ores, of no value whatever. A new effort in this direction has, however, lately been made in New York with success. A mill has been built in which lots of from 200 to 300 lbs. to 3 or 4 tons of ore can be treated by any process, and the results obtained can safely be calculated on to be reproduced in regular working, and the cost of treatment determined with sufficient accuracy.

In this mill, which is roomy and well-lighted, the ore under examination is first passed through a Blake crusher, reduced to the size of small gravel, and then sampled by quartering down on a large smoothly-laid floor specially designed to allow ample space, with convenience for perfect cleaning; the sample thus obtained is prepared for the laboratory by a sample grinding machine. Beyond this point the mill is arranged to work, as far as possible, automatically, and all the different parts of the machinery have been made by a well-known firm from patterns especially modelled on the latest improved designs of ordinary milling machinery. The two processes most likely to interest the mining public, and of which a description would best illustrate the working of this mill are—the milling of ordinary gold quartz, with concentration of the sulphurets, and the combined pan amalgamation and concentration of silver ores, together with the subsequent treatment of the concentrates produced. The first of these is one of the simplest and least expensive of all metallurgical processes, and may be described as effected in the testing mill in a few words. The hopper of the automatic stamp feeder (capable of holding half a ton) is charged with the crushed ore and the three stamps allowed to drop. Quicksilver is fed at intervals into the stamp mortar, and the crushing and amalgamation go on simultaneously, the amalgamated gold being deposited on the amalgamated copper plates which line the mortar, and part (about one-third) passing through the screen with the pulp to be deposited on the outside copper table. From the outside table the pulp flows on to a Frue vanning machine, passing on its way an automatic sampling machine, which takes a perfect sample of the ore after amalgamation; from the vanning machine it flows to waste after passing another automatic sampler, while the concentrated sulphurets, after the end of the operation, are collected and sampled by hand to be subsequently roasted and treated either in the fan or by Plattner's chlorination process. The results obtained from such an experiment are classified as follows:—1. The total value of the ore as obtained from the original sample.—2. Percentage of gold amalgamated.—3. Value still contained after extraction of all the free gold.—4. Percentage of sulphurets, together with their value per ton, and the amount of same value extracted either by pan amalgamation or chlorination.—5. Exact amount of total unavoidable loss.

Added to the above there is ascertained the amount of ore which may be crushed through a given screen by an ordinary 750 lb. stamp for 24 hours, and deduced from this, the cost of fuel, labour and supplies being given, the cost of treatment per ton, as the three stamps weighing 250 lbs. each have been found to treat as much of the finely crushed ore as one 175 lb. stamp working on ore of the size usually fed. The other process, that of the amalgamation and concentration of silver ores, is somewhat novel. Until recently low grade silver ores containing less than 10 per cent. of base mineral were treated by pan amalgamation or concentration, and generally with very poor results, as the particles of ore which were heavy enough to resist the action of the pan were entirely lost and, in the process of concentration the light finely divided particles were carried away suspended in the water. Within the last year or two, however, the application of cheap automatic concentration, combined with pan amalgamation, has been introduced with much success, the heavy particles which resisted the action of the pan being saved by the concentration and the finely divided particles which escaped with the slimes being treated to a high percentage in the pan. This process is arranged in the testing mill as follows:—The ores are stamped as for gold, the copper plates only omitted, and the first sample taken by the automatic sampler serving only as a check on the original sample. After passing over the Frue vanner the pulp is sampled as before and allowed to run into settling tanks from which, following the method in ordinary use in silver mills, it is shovelled into the pan. After amalgamation in the pan the whole charge is run into the settler where the amalgum is collected, and the tailings as they flow from the settler pass a third automatic sampler which renders an account of the final loss.

The concentrations from the vanner are collected, sampled, dried, weighed, roasted with salt, and treated as usual in the pan. For the roasting a reverberatory furnace of a convenient size was selected,

as being more easily cleaned than any other form of furnace, while giving equally good results. The cost of treatment of a silver ore by this process is calculated from the capacity of the stamps, the amount of grinding required in the pan, and the time necessary to complete the amalgamation, the proportion of concentrates saved in the vanner, and the length of time occupied by the chloridising roast, with the amount of salt required. The details of the results obtained by this experiment are of the same character as those enumerated above for the gold run, and show the value of the ore, the amount of value extracted, with the cost per ton of extraction.

It may be of interest, in view of the lately published pamphlet on leaching silver, to mention that the arrangements in this mill for the leaching process were completed from notes furnished by Mr. Russell, of the Ontario Mine, Utah Territory.

In the New York Ore Milling and Testing Works all experiments are conducted by engineers who have had long practical experience in the management of mining and milling machinery, and under whose supervision mining engineers may make their own experiments and carry away their own samples to be assayed, if desired, elsewhere, while the mill is supplied with a first-rate laboratory, including the very best balance to be obtained.

Many of the fatal mistakes which have lately brought mining as a legitimate enterprise into disfavour with the public might have been avoided by supplementing the statements of the promoters of mining companies by facts gathered from practical experiments on fairly selected samples of ore in such a mill, and it is to be hoped that those interested in this important industry will take advantage of the facilities thus brought within their reach to avoid such mistakes in the future, and to conduct their mining schemes on more rational and business-like principles.

HADFIELD'S MANGANESE STEEL.

Perhaps one of the most important papers read at the recent meeting of the American Institute of Mining Engineers was that by Mr. JOSEPH D. WEEKES on this material. Manganese, he said, has until recently been most highly esteemed as a good thing to keep out of steel. Its value in the process of manufacture has been fully recognised, but after it has played its part in the crucible or the converter, then the less of it the better. It is true that the mission of this metal, and its influence upon the character of steel, has been a source of much controversy. Mr. A. L. Holley, in one of his special reports on ferro-manganese, states that "it has been suspected by some, and believed by a few, while it is still denied by many, that manganese as an ingredient in steel has not only a body-giving and toughening influence, but a positive neutralising influence upon any excess of hardening or cold-shortening substances as phosphorus." In another paper on the same subject he states that "it should appear from such facts as we have that manganese toughens the structural steels, 'increases their soundness, and prevents red-shortness.' Notwithstanding these rather guarded assertions as to its value, the general belief, it will be found, is with Dr. Siemens, that manganese is 'merely a cloak to hide impurities,' and its presence in steel has been endured, not welcomed.

But whatever may have been the difference in opinion as to the effect upon steel of a small percentage of manganese, not to exceed, say, 1½ per cent., there has been a general agreement among metallurgists that any amount in excess of this would produce metal rotten and utterly worthless. In the Terre Noire experiments, referred to in Mr. Holley's report before quoted, 1 per cent. is the highest given as found in the steels reported upon. In a paper read by M. Gautier, of Terre Noire, before the British Iron and Steel Institute, "On the Uses of Ferro-manganese," this same percentage is given as the proper amount to be used in the manufacture of what this distinguished metallurgist terms "manganese steels," while in all three of the papers the analyses of the steel show the usual percentage of manganese to be much below this. Indeed from 1 per cent. to 1½ per cent. has been regarded universally as "high manganese," and the published testimony is that more than this renders steel worthless.

In opposition to these views, Mr. Robt. Hadfield, of the Hadfield Steel Foundry Company, Sheffield, England, has demonstrated that a steel containing from 7 to 30 per cent. of manganese is not only not a rotten and worthless product, but that in the ingot, as cast, it is harder, stronger, denser, and tougher than most steel now manufactured, even when forged and rolled, and, in addition, it possesses curious and remarkable properties, which it is believed will make this steel exceedingly valuable for many purposes for which the ordinary steels are not now used.

In the samples of steel which, through the kindness of Mr. Hadfield, I am permitted to exhibit to the Institute, the manganese is from 9 per cent. in ingot No. 10 to 19 per cent. in the axe. No samples of the higher percentage have reached me. The bent flat piece contains 9½ per cent., ingot 180 and the pit car-wheel which has been so badly hammered with so little effect, 11½ per cent., the axle 13½ per cent., and ingots Nos. 20 and 21 14½ per cent. The axe and axle are castings just as they come from the sand, neither forged nor hardened, and have been ground since I received them. These are rough specimens, the Hadfield Foundry not being adopted to this class of work, but with proper care in moulding and manufacture such articles can be made as smooth and clean as cast-iron. Indeed, some of the most valuable characteristics of this steel are shown in casting. It possesses great thinness and fluidity, casts without misrunning does not settle as much as ordinary castings, and does not draw, particularly at the junction of the thick and thin parts. It is also free from honey comb and other similar defects.

It is evident that a metal that casts in this manner, and that needs no hardening nor tempering, must be especially adapted not only to the manufacture of most articles that are now cast, but for a wide range of articles that are now forged, rolled, or hammered—such as the larger edged tools, hammers, picks, &c., guns, armour-plate, shell and other projectiles, car wheels in place of chilled wheels, implements and parts of machinery, especially bearing parts, safes, steel toys, plough steel, &c. A razor has been cast from this steel, and used without hardening. It was not equal to the best steel razor, but it was a fair implement.

But perhaps the most remarkable and valuable of the properties of Hadfield's steel is its great toughness, combined with its extreme hardness—two properties generally regarded as incompatible. The toughness will be evident upon an inspection of the fracture of the ingots. The little steel needles scattered all over the face of the fracture, forming an acute angle with the face, show the character of the rupture to be entirely different from that of ordinary steel. These needles are very tough, and, small as they are, do not break off when struck, but bend almost like native copper. It also requires a blow of considerable force to bend them. It was exceedingly difficult to break these ingots, a number of blows of a steam hammer being required, sledges having no effect. Ingot No. 10, with 9 per cent. manganese, was broken from a piece 2 ft. 6 in. long, supported at both ends. It bent 1½ inch before breaking, though it had not been forged. Hammered samples from this ingot gave 42 tons (94,080 lbs.) tensile strength, and 20-85 per cent. elongation in 8 in. The flat piece—No. 180 (9½ per cent.)—which has been hammered, was bent cold, and does not show the least crack. This piece has been drilled. The bulging of the steel under the drill point is quite noticeable. This piece of wire was also bent cold after drawing. The small colliery wheel (11½ per cent.) was struck 50 blows with a heavy sledge, and bent as will be seen.

Notwithstanding this toughness, the steel is extremely hard. The lower percentages—say, 9 per cent. to 10 per cent.—which are the toughest, can be drilled and machined, but not as readily as the ordinary steels; those somewhat higher with difficulty, while it is practically impossible to drill, turn or otherwise machine the higher percentages. The colliery wheel, which bent so under the sledge blows, shows on the head and hub the results of attempts made in this country at my request to drill and turn them. The edges were taken off the tools instantly, hardly scratching the wheel. The axle (19 per cent.) and the axle (13½ per cent.), as has been already stated, were sent me rough as they came from the sand, and were ground by Messrs. Hubbard, Bakewell and Co., Pittsburgh. Regarding the steel, Mr. Charles W. Hubbard writes me:—

"The steel axe and adze we ground for you was extremely hard. There seems to be a peculiar close, hard, greasy nature about the material that resists the action of the grindstone and emery wheel, as they have less effect on them than anything we have ever seen in the line of steel or iron. I would say the material has the very essence of anti-friction. A journal made of such material would run to an extreme number of revolutions in a sand-box without friction or heat."

I have not tested this axe, but one made in a similar way cut through 3-in. iron. I have already intimated that this steel can be rolled and forged. The lower percentages are more easily worked, but steel with as much as 18 per cent. has been hammered. The higher percentages require great care, however. One of the most remarkable properties of this steel exhibits itself in connection with hammering or drawing it. When thus manipulated it becomes exceedingly hard, and loses some of its toughness. If now the steel is heated to a hot heat, yellow or nearly welding, and allowed to cool in the air, or is cooled in water or oil, it becomes exceedingly tough. The flat piece, No. 140, was so heated and cooled before being bent. The wire was similarly treated after drawing, which made it extremely hard. This is virtually annealing, but it will be noticed that it has the effect upon Hadfield's opposite to that upon carbon steel. It should be noted that this steel is non-magnetic in bulk and a poor conductor, though fine drillings and scrapings are attracted by the magnet.

The process of manufacturing this steel is exceedingly simple. Melted ferromanganese high in manganese (Mr. Hadfield suggests 80 per cent.), and as low as possible in carbon, silicon, and other foreign bodies, is added to iron that has been nearly or quite decarburised, or to molten steel. The manganese is thoroughly incorporated by stirring, and the steel poured into ingots or other suitable moulds. The percentage of ferro to be used, and consequently the amount of manganese in the steel, must be raised according to the use to which it is to be put. No absolutely exact proportions can be given. To produce a steel suitable for armour-plates sufficient ferro to give (say) 10 per cent. manganese in the steel should be added; for car-wheels, axles, or railway plant (say) 11 per cent.; edge tools and steel toys, 12 per cent.

ANGLO-VENEZUELAN MINING ENTERPRISE.

In noticing Messrs. De Rojas Brothers June circular—Anglo-Venezuelan Review, we said—"Save us from our friends," if Messrs. De Rojas Brothers' views as to the recognition in Venezuela of the rights of property be correct, for no European capitalist would henceforth invest a shilling in Venezuelan securities with any hope of obtaining a return, and, in conclusion, remarked—Messrs. De Rojas Brothers do not benefit either themselves or Venezuela by their attempt to mix up the family and domestic matters of the President with their public duties, nor by descending to personalities levelled against a man who is sufficiently respected in Venezuela to be accredited to the Court of the country which affords Messrs. De Rojas Brothers perhaps more protection than they would be able to command if they occupied a more prominent position amongst Englishmen. With reference to our remarks Messrs. De Rojas thus month say:—

THE MINING JOURNAL.—It was with regret we read an article published in this important Journal on June 14 with regard to this Review, and we cordially entirely the assertions therein made. We have never represented our country as unsafe for the investment of foreign capital, nor have we said that the right of private property is not fully respected there; but, on the contrary, while acknowledging that the general feeling of the country is to respect private property... Private property is universally respected in Venezuela; it would, therefore, be a very great injustice to attribute to the Venezuelan character a fault which it has never exhibited either during the trying circumstances of a civil struggle or the peaceful days of the Republic. Further, property held by foreigners has hitherto been considered as sacred by the inhabitants of that country as property held by themselves—nay, we might even assert that it is more sacred. We do not consider that we laid ourselves open to the charge of descending to personalities and attempting to mix up the domestic matters of the late President with his public duties. We desire to correct the inference conveyed by this article. We only condemned an official act, and set out its consequences.

After such an explanation it can only be concluded that Messrs. De Rojas's personalities were unintentional at least, and that they are attributable to their not understanding what Englishmen regard as personality. The explanation is the more gratifying since it was generally supposed that it was because Dr. Jose Maria De Rojas felt the smart of the uncatrised wound received in his removal from the office of Venezuelan Minister at the Court of St. James's, and desired to bespatter the new Minister, General Guzman Blanco, before he reached this country, and, therefore, before he could defend himself. That Venezuela has rich mines is not disputed; but, whilst no reliance whatever can be placed in the law being administered with reasonable integrity, and whilst the De Rojas and Blanco factions are in actual if not in open feud British capitalists will do well to avoid subscribing funds for Venezuelan enterprises altogether. Dr. De Rojas, as a Venezuelan citizen enjoying asylum in England, should act loyally to the Minister for the time being of the Republic, whoever that Minister may be, and we shall be only too glad to announce that Blanco and De Rojas are working harmoniously to aid the development of Venezuelan industry, and that the annoying and apparently interminable litigation in which Anglo-Venezuelan concerns are involved is no longer necessary.

ENGLAND'S INDUSTRIAL SUPREMACY IN THE MANUFACTURE OF IRON*—No. II.

BY SIR FRANCIS C. KNOWLES, BART., M.A., F.R.S.

The following estimate is given by M. Valerius of the cost of getting and washing this ore in 1881, since which time wages have much risen:—

	First washing.	fr. c.
1 mc. 82 raw wire at 3 fr. 70 c.	6 73	
Cost of washing	1 50	
General charges	1 0	
	9 23	
	Second washing, generally at the works.	fr. c.
111 mc. of mineral, as above	10 15	
Labour	0 65	
General charges	0 15	

Or, 9 fr. 12 c. per 1000 kilogrammes... 10 95

This does not include transport to the works or the loss of 10 per cent. on it in the washing. The price of the more solid parts of the ore broken up and washed is 6 fr. 27 c. Thus we may assume the price in English money to be respectively 8s. 8½d. and 5s. 1½d., to which is to be added the cost of transport to the works. The large mine is not more than 7 per cent. of the bulk of the whole. With respect to roasting M. Valerius states that "it would be irksome to purify so exactly the mineral when one cannot obtain fuel free from pyrites (sulphuret of iron) which often happens; in Belgium the greater part of the blast furnaces are fed with raw minerals." We beg our readers to take note of this fact when they estimate the probability of a successful competition with England by the Belgian ironmasters.

We conclude this description of the Belgian staple iron ore (the limonite) by some analyses of the mineral. Where the earthy matters are not chemically given the assay has been by crucible by the pupils of the Ecole de Mines at Liege University, to one of whom we owe the report. It will be observed that the proportion of volatile matters is large.

1.—Limonite of Tégelen, in the Campine, Limbourgese:—

	In sand.	In vegetable mould.	In marshes.
Matters volatile in the furnace	12.02	16.50	11.40
Vitrifiable matter	45.05	22.59	37.68
Cast metal	33.60	44.44	37.05
Oxygen of oxide of iron	9.33	16.47	13.19
	100.00	100.00	99.32

* Being the Newcastle Price Assay first published in 1867, and now reprinted because indicating the direction whence an improvement in our iron industry may be looked for.

2.—Earthy limonite of Vinalmont, near Couthuin, province of Liege:—

Matters volatile in the furnace	12.70
Vitrifiable matter	14.12
Cast metal	56.08
Oxygen in combination	16.10
	99.00

3.—Limonite of Pirombœuf, on the Ourthe, near Aywaille, province of Liege:—

Matters volatile in the furnace	12.40
Vitrifiable matter	22.47
Cast metal	48.40
Oxygen in combination	16.73
	100.00

4.—Limonite of Durbuy, province of Luxembourg (N.):—

Matters volatile in the furnace	14.50
Vitrifiable matter	8.20
Cast metal	55.70
Combined oxygen	21.60

5.—Limonite near Chimay:—

Matters volatile in the furnace	15.50
Vitrifiable matter	12.56
Cast metal	54.90
Oxygen combined	17.04
	100.00

6.—Limonite from Angleur, province of Liege. Analysis by M. Montefiore:—

Peroxide of iron	64.50
Oxide of zinc	15.00
Combined water	14.00
Gelatinous silica and sand	6.50
	100.00

Iron in the calcined mineral, 52.50 per cent.

This mineral is much intermixed with lead and white and yellow pyrites, but it is one of the best iron ores in Belgium, it is smelted at Seraing.

7.—Mineral of Ligny, province of Namur, on the left bank of the Sambre, limonite, smelted at or near Liege:—

Peroxide of iron	67.65
Silica	18.35
Alumina	2.60
Combined water	11.07
	99.67

Iron, 47.35.

8.—Limonite—Globulous hydrated peroxide of iron from Mersch, province of Luxembourg. Analysis of M. Reuter:—

Water	9.344
Silica and silicates	26.456
Peroxide of iron	60.012
Alumina	3.493
Magnesia	.199
Phosphate of lime	.036
Sulphate of lime	.042
	100.000

Iron, 42.0084.

9.—Limonite of Mamer, province of Luxembourg. By M. de la Thuillierie:—

Water	9.811
Silica and silicates	21.103
Peroxide of iron	65.177
Alumina	3.784
Magnesia	.098
Phosphate of lime	.443
Sulphate of lime	.146
	100.000

Iron, 45.623.

Minerals of La Campine and Le Haegeland, provinces of Limbourg, Brabant, and Antwerp.

10.—Limonite. Analysis of M. E. Bidaut:—

	Cappelen.	Environ of Diet.
Water combined and volatile matters	14.40	00.40
Silica and quartz	10.50	31.20
Alumina	.50	1.20
Lime	00.00	.80
Magnesia	.50	.10
Ferrous oxide	73.00	53.80
Sulphure of iron	.50	1.10
Loss	.60	2.40
	100.00	100.00

NON-PHOSPHORRETTED BRITISH IRON—No. II.

The daily produce in 12 hours from dressing 20 tons of ore has been 3 tons, averaging 8 per cent. of copper, which at the present price per ton of copper is worth 4½s. per ton, while the 15 tons of waste, if utilised for smelting iron, are worth at least 3s. 6d. per ton. Consequently the result is on the 12 hours' crushing and dressing gives a net return of 13½s. 6d. upon an outlay of 77s. 10s., showing profit over 80 per cent.

In September, 1880, 10 tons of washed ore and 33 tons of slimes were sold at Port Talbot, realising 171½s. 2d. The expenses of shipping freight and southern charges were 25½s. 6d. The principal part of the ores from which this lot was made was extracted from incline shaft, between the 40 and 50 fm. levels, and stope above south drive 40 fathoms. The quantity of ores used would be about 300 tons. The cost of extracting these from a stope would be 5s. 6d. per ton, and of dressing 1s. a ton, in all 97½s., and fair proportion of general expenses or charges 15½s. The resulting profit was consequently 33½s. 8d., or 30 per cent. on the cost of production, besides the waste spathose ore crushed ready for calcining. In May, 1881, 50 tons of raw ore chiefly from the 50 fm. level were shipped to Liverpool realising 80½s. The expenses on these are extracting and shipping and proportion of general expenses 18½s., freight 25½s., and southern expenses 9½s., resulting in a profit of 27½s., or 150½s. per cent. on the cost of production. The profit per ton of raw ore was 10s.

The present dressing machinery is calculated to crush and dress only 20 tons in 12 hours, but this could be run day and night, thereby producing double the quantity, and it would be easy, if required, to increase the works so as to double again this amount. There would be no difficulty as regards the mine, there being ground enough open to produce sufficient ores for a very largely increased establishment. The number of men actually employed on the production of ores during the years 1880-1881 varied from 10 to 20, whereas to work economically there ought to be not less than 60 to 60 at work on the copper ore alone.

The spathose vein can be traced for miles, and by opening up the different workings in the west pit, extracting all the vein in the East Pit, and driving in on the extension of the vein from Sandwick Bay any quantity could be obtained, the production being in fact limited only by the number of men employed, and the arrangements that may be made for shipping. As favourably pointing to a productive and valuable copper mine we may cite the general opinion of physicists that large deposits of spathose ore invariably make copper or lead in depth; this deposit is evidently making copper. Thus this mine requires only sinking to a greater depth. It is an obvious waste of power to attempt to make profit on the inferior ore of the upper region, gossan and spongy hematite, when those of a much richer yield are almost within reach.

It will be necessary also to increase largely the dressing machinery, and this again implies considerable work to increase proportionally the supply of water. Capital alone is needed to realise all these improvements. An expenditure of about 5000l. would suffice for the purchase and erection of the additional machinery for crushing and

dressing, for sinking to a further depth of 40 fathoms, and for increasing the water supply. The above estimate applies only to the old workings, but a new state of the mine has arisen which suggests a corresponding modification in part of the previous plans, involving a safer and more profitable mode of working. The former proprietors of the mine having permitted the mine to be filled with water from disuse, and the pumps having been drawn, it has, after due consideration, seemed prudent as a safeguard against temporary damage from the softened state of the upper strata of porous gossan and hematite to abandon for a time the original pit, and to reach the deeper workings by a new shaft nearer to Sandwick Bay. Accordingly such a spot marked "sand" upon the map has been selected. There is no very hard ground to encounter, and it would not take more than two months to strike the veins at 150 or 200 ft.

The machinery for pumping and sinking is all in good condition except the boilers, which must be replaced by new ones. The work would go on much better by the opening up of the spathose ores, and the hematite ores at the same time, indeed it would be advisable in sinking the new shaft to run into the mine at water-level, and to ascertain the quantity of hematite that would be won. An adit level ought at the same time to be pushed on from the outcrop on Sandwick Bay shore along the course of the vein, which would open the ground for the extraction of large quantities of spathose ore in preparation for calcination to supply the ironworks on the Tees, as ore in large quantities must in any case be stocked. The estimate for the new shaft, the boilers, the tramway with rolling stock, and the quay on Sandwick Bay with lighters, landing gear, and everything complete to work the copper mine is about 15,000l. Much of this would be charged to the account of the ironworks, either on the iron ores or in capital. The net returns would not be less than 10,000l. a year, and might be much more.

The crushing machinery might be left in its present place, as a light tramway would take down the heavy cars, bringing up the light ones at the same time. Sandwick Bay is open to the south, and part of it is well sheltered, but it would be advisable to organise a regular traffic by steamers only especially with a view to return freights in coal.

An analysis of South Shetland, Sandwick, spathose or sparry carbonate of iron, by Messrs. Johnson and Sons, gave raw—Carbonate of iron, 62.40; manganese, 2.00; lime, 9.90; magnesia, 24.90; silica, .80=100.00 representing metallic iron 30 per cent. calcined (by computation):—Proto-peroxide of iron, 64.53; peroxide of manganese, 2.10; magnesia, 22.37; lime, 9.34; silica, 1.36=99.70 representing metallic iron 40 per cent. manganese, 1.5. An analysis of hydrated brown hematite iron ore, by Robert M'Attey, Chemical Laboratory, Falkirk, N.B.:—Peroxide of iron, 78.03; bisulphide of iron, .10; peroxide of manganese, 3.20; oxide of copper, .60; lime, .24; magnesia, .74; phosphoric acid, very faint trace; silica, including a small quantity of alumina, 5.90; moisture, 10.80=99.61 representing metallic iron 54.62 per cent., or in calcined ore above 60 per cent.

Using Shetland ore on the Tees it is estimated that the cost of 1 ton of grey pig-iron would be 36s. The price of such metal is much higher than that of common hematite, but assuming 55s. the price f.o.b. of Barrow hematite pig we have a profit of nearly 17s. per ton. The Weardale Company charged not long ago 4½s. for such iron. One furnace throwing 600 tons weekly would thus yield a net profit of 31,200l. per annum. Spiegeleisen of 10° would certainly give a profit of 2½s. if made of this, and the South Devon ores, thus making in all an income of 93,600l., to which 10,000l. or 15,000l. is to be added for the copper. The profit on the higher degrees in manganese would be much larger.

The South Devon Iron Mine is situated at Henneck, about 12 miles from Teignmouth, within a very short distance (to be covered by a tramway from the pit's mouth) from the Teign Valley Railway Station, so that the ores can be shot directly from the trains into the railway trucks. The mine itself is an extinct lead mine, consisting at present of two lodes which have been proved to the depth of 96 fathoms. Many thousands of pounds worth of lead ore has been extracted from one of the lodes to that depth, but after this the character of the minerals changed and the lead ore was succeeded by a fine spathose ore or carbonate of iron containing no less than 13.46 per cent. of protoxide of manganese, or about 10 per cent. of metallic manganese. (The analysis of the ore by the late Dr. Noad, F.R.S., is given below.) The range of these lodes is about ½ of a mile, and their thickness widening downwards is 14 ft. There is a third lode not far westward which should be proved; it can be won by a short cross-cut from the present workings at no great expense, and will probably prove to be lead. The quantity of ore already laid open is sufficient to supply one blast-furnace (or two smaller) throwing 600 tons weekly for above 30 years at its present depth of 96 fathoms, which quantity will be much increased by a greater depth. The shafts and levels already opened in all directions by the lead miners could not be made for less than 40,000l., all which outlay must have been made, and is now available for the iron ore. Moreover, the deeper sinking can now be made in the body of the iron lode, and the search downwards for the lead ore continued not only at no cost, but with a profit on the iron ore extracted. It is anticipated by experienced mining engineers that the lead ore will be recovered in depth. The iron ore is quite free from lead specks.

This mine is furnished with complete pumping and lifting gear, tools, &c., driven by two powerful engines of 60 in. and 45 in. respectively, all in good preservation and order, and requiring only slight repairs and additions. The analysis of the ore by Dr. Noad gave—Raw Ore—carbonate of iron, 73.96; manganese, 13.46; lime, 2.00; magnesia, 5.00; phosphoric acid, none; sulphur, none; silica, 5.60=100.00, representing metallic iron, 35.68; ditto manganese, 7.2. Calcined ore (by computation):—Proto-peroxide of iron, 71.70; protoxide of manganese, 13.11; magnesia, 4.16; lime, 1.76; silica, 5.79=99.52, representing metallic iron, 51.32; manganese, 10.20. The metal in the pig spiegeleisen will be at least 60 per cent. of the ores employed. The cost of ore would be 17s. 2½d. This is the cost of the calcined ore on the furnace bank, allowing for back freight in coal, and is about 1s. 6d. below the Spanish raw hematite. The cost of getting will be considerably reduced when the output is increased to its limit.

WEST DEVON GREAT CONSOLS.—At a meeting held at Walbrook on June 27, and attended by nine adventurers, representing more than 1500 shares, Messrs. Campion, Evans, and Heiron were appointed a committee for the purpose of communicating with their fellow-adventurers in order that united action may at once be taken for the protection of the property of the company and of the adventurers individually against the extraordinary and alleged illegal action of the pursuer. It appears that for the last six months or more the committee had ceased to exist, and that the pursuer has had the sole control of the company's affairs.

GOLD AND SILVER.—Messrs. FIDLEY and ABELL (July 3) write: With no great arrivals and a strong demand for export, gold has continued extremely firm. The Bank has sold during the week 250,000l., of which 150,000l. was in bar gold for Canada, the New York, and 100,000l. in sovereigns for Montreal, direct per Dominion Line steamer sailing this day. The arrivals are:—24,000l. from West Indies; 3500l. Australia; 3000l. Buenos Ayres; and 3400l. the Cape of Good Hope; total, 43,500l. The Valetta takes 45,700l., and the Indus 25,600l., to India.—Silver: Since our last has hardened considerably. The amounts of Nile and Buffon were sold at 50½d. Later, the Indian exchanges were firmer, and this, together with the small amount available, caused the price to rise to 50½d., which we give this day as our quotation.

TO CAPITALISTS.

WANTED, to form connections with capitalists in view of the working out of extensive COLLIERIES well situated in Bohemia, and of an extent of 2360 hectares; also of large lead and silver ore beds of 440 hectares. The above may be purchased. For further particulars address J. A. KRONHOLZ, Altenburg, Saxony.

SOCIETE ANONYME DE LA NOUVELLE MONTAGNE, A ENGIS.

Messrs. AYNARD and RUFFER will PAY, on or after June 30th, Coupon No. 55, on the 200 frs. shares (one-fifth part of 1000 frs. shares), at the rate of FIVE FRANCS each coupon. Coupons must be left three clear days for examination, 39, Lombard-street, E.C. June, 1884.

QUICKSILVER-WAVE AMALGAMATOR COMPANY, LIMITED. (MOON'S PATENT.) FOR EXTRACTING GOLD AND SILVER FROM THEIR ORES.

The directors are now prepared to receive orders to supply the Quicksilver-Wave Amalgamator to mining and other companies, complete or ready for putting together, packed in cases for shipping to any part of the world—delivered in London, Liverpool, or any shipping port in England or Wales, on terms to be ascertained at the company's offices.

The amalgamators are made of sizes to treat 10, 15, or 20 tons per 24 hours; the power necessary is only from $\frac{1}{2}$ to 1 H.P., according to size, and the supply of water required is only that in ordinary use. Practically, no quicksilver is lost; and the process will save nearly 90 per cent. of the assay value of ore with sulphurets, and all the free gold.

The actual costs of treatment will be under 1s. per ton.

OFFICES—27, THROMORTON STREET, BANK, E.C.
WORKS—17, WHARF ROAD, CITY ROAD (near the Canal).

WM. BREDEMAYER,
MINING, CONSULTING, AND CIVIL ENGINEER,
56, EAST FIFTH SOUTH STREET,
SALT LAKE CITY, UTAH.

United States Mineral Surveyor for Utah and Idaho, Notary Public, Geological Examinations, Reports on Mining Properties; Surveys Mines, Railroads, and Canals, and Superintends the workings of the same. Prepares Estimates and Plans for Opening and Working Mines. Expert on Mining Questions before the Courts.
Address, P. O. Box, 1157, Salt Lake City, Utah.

**ALEXANDER SMITH, M. Inst. C.E., CONSULTING
ENGINEER AND VALUER OF IRONWORKS,
MINING, RAILWAY, ENGINEERING, and other PROPERTY,
PLANT, and MACHINERY,
PRIORY STREET, DUDLEY,
AND
4, BURLINGTON CHAMBERS, NEW STREET, BIRMINGHAM.**

Mr. SMITH has been retained for nearly 20 years by some of the most prominent firms, and has conducted many of the largest valuations that have taken place in the kingdom.
Valuations for Stock Taking or any other purpose upon very reasonable terms.

THOMAS CORNISH, CONSULTING MINING ENGINEER.
Mines Inspected and Reported on. Advice on Mining Management and Investment.
Twenty-five years' practical experience in Australia.
Author of "Gold Mining: its Results and its Requirements," "Our Gold Supply: its Effects on Finance, Trade, Commerce, and Industries," "A Trip to Colorado," &c.
Address, care of MINING JOURNAL Office, 26, Fleet-street, London, E.C.

**JOHN ROBERTSON, F.S.A., MINING AND CONSULTING
ENGINEER, LAS VEGAS, NEW MEXICO.**
Mines and Mining Claims carefully examined, Assays made of their Ores, and reliable Reports furnished.
Mining Properties bought and sold on commission. Has special facilities for inspecting properties in Mexico.
References by permission:—L. F. BROWN, Esq., Las Vegas, New Mexico; Don F. A. MANZANARES, Las Vegas, New Mexico; His Excellency H. M. HOYT, Ex-Governor of Pennsylvania, Harrisburg, Pa.; H. S. PIERCE, Esq., Banker, Scranton, Pa.; Hon. JOHN HANLEY, President Judge 45th Judicial District, Scranton, Pa.; N. H. BEAVER, Esq., Cashier Third National Bank, Scranton, Pa.; E. B. STUBBS, Esq., Attorney-at-Law, Scranton, Pa.; E. W. WESTON, Esq., General Agent Delaware and Hudson Canal Company, Providence, Pa.; Hon. Sir JOHN F. CLARKE, Baronet, Tiltleprairie, Aberdeenshire, Scotland; R. L. CHANCE, Esq., Birmingham, England; JOSEPH ROBERTSON, Esq., 17, Tokenhouse-yard, London.

MINING ENGINEER.

ALEX. DEL MAR,
Mining Engineer, late Director of the United States Bureau of Statistics, Mining Commissioner for the United States Monetary Commission, &c.
120, BUTTER STREET, SAN FRANCISCO.
Cable Address: "Delmar, San Francisco."—Branch Office: 81, Broadway, New York.
References: The London, Paris, and American Bank, Limited, 9, Tokenhouse Yard, Lothbury, London, E.C.
ALEX. KERLY, Esq., 14, Great Winchester-street, London; and numerous others.

CONFIDENTIAL ENQUIRY.

MR. S. HOCKADAY, of ST. AUSTELL, whose professional experience as Chief of the Detective Service in the West Riding of Yorkshire, and years of experience in the like service in London, has well qualified him for the most delicate and difficult enquiries in all matters of Family Division, Divorce and Matrimonial Causes, &c., as also in the Collection of Evidence in Bankruptcies, Insolventcies, and Disputes in Partnership, Trade and Mining Frauds, Conspiracies, &c., OFFERS HIS SERVICES FOR SIMILAR BUSINESS.
Best testimonials and references, charges moderate, and in most cases measured by results. Address, as above.

**SILVER MEDALS AWARDED AT CORNWALL POLYTECHNIC
1872 AND 1876.**

**THE WELL-KNOWN PATENT SELF-ACTING ORE
DRESSING MACHINERY,** as in operation at most of the large Mines in the Kingdom and Abroad, is now supplied solely by **THE PATENTEE AND MANUFACTURER, MR. GEORGE GREEN** Mining Engineer, AT GREATLY REDUCED PRICES also all descriptions of Mining Machinery, including
Stamp Mills, Water Wheels, Steam Engines, &c.

ROLLER SHELLS FOR CRUSHING MILLS—a speciality

SPECIAL DESIGNS FOR EXPORT AND DIFFICULT TRANS

Prices and particulars on application to the Manufactory
ABERYSTWTH, SOUTH WALES

DEPRESSION versus ECONOMY.

**LET ALL STEAM USERS COVER THEIR BOILERS AND
STEAM PIPES with**

TANNIC CEMENT,

And save 15 per cent. to 75 per cent. (according to situation and length of pipes) of their expenditure on Fuel.
For prices and full particulars of this New Patent Non-conducting Composition, write to the Manufacturers,—

DAVID BURNS AND CO., Engineers,
10, BANK STREET, CARLISLE.
AGENTS WANTED.

A GERMAN GENTLEMAN, living in London, who has been for 11 years Chemist and Manager at first-rate English and Foreign Metallurgical Works, SEEKS SIMILAR SITUATION, or a post as representative on the Continent. Speaks English, French, and Spanish.
Address, "Chemiker," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

**WANTED, an ENGAGEMENT as MANAGER or SUB-
MANAGER.** Advertiser, a student at Freiberg, has since had 15 years' practical experience in Assay Laboratories and Silver-lead Works, and has a knowledge of gold extraction. Good references.
Address, "F. C. S." No. 1, Northampton Villas, Swansea.

J. S. MERRY,
ASSAYER AND ANALYTICAL CHEMIST,
SWANSEA.
SUPPLIES ASSAY OFFICE REQUIREMENTS AND RE-AGENTS.

LE MOUVEMENT INDUSTRIEL BELGE.

REVUE TECHNIQUE, COMMERCIALE, ET FINANCIERE,
sous la direction de Mr. l'ingénieur P. DESGUIN. Paraît le 4 Juillet, 1884, et successivement les Vendredis de chaque semaine. Il contiendra des articles d'actualité sur l'agriculture, la navigation, les mines, la construction, les machines, les chemins-de-fer, les canaux, les travaux publics, le droit industriel et commercial, les inventions, et les perfectionnements, et principalement sur l'Exposition Internationale d'Anvers, dont il publiera les plans, les dessins, et documents de tous genres.

Abonnements annuels:—Belgique, 25 francs; pays voisins, 30 francs.
S'adresser à Mr. NICOLAS FASTERE, Ingénieur-Administrateur.

**COMPANIA MINERA "EL CALLAO,"
CUIDAD, BOLIVAR.**
NOTICE.

The ownership of shares is only recognised by their being inscribed in the Registration Book.
The purchasers should receive the shares endorsed by the seller in accordance with Article 5th of the Statutes, which runs as follows:—
"ARTICLE 5th.—The shares are transferable by endorsement to be communicated to the Board of Directors by the vendor and by the buyer, or their legal attorneys. These transfers will be registered in the Share Book kept by the company for the purpose and authorised by the signature of the Treasurer."
The buyer, besides the endorsement, will receive from the vendor a letter addressed to the President of the company, stating that he has sold to N.N. the share or shares No. owned by him; the buyer will also have to communicate to the President that he has bought of N.N. the share or shares No. and request that the transfer be registered, indicating at the same time the name of a person residing in Ciudad, Bolivar, as his representative.
(Signed) A. LICIONI, President.

**MINE "EL CALLAO,"
GUAYANA, VENEZUELA.
32,200 SHARES.**

Gold in bars produced in the month of May, 1884, remitted to Messrs. Baring Brothers and Co., London—16,222-32 ozs.
DIVIDEND distributed for each Share, 32 francs.
(Signed) A. LICIONI, President.
(Signed) VICTOR T. GRILLET, Treasurer.

**THE CANADA PACIFIC IRON AND STEEL RAIL
COMPANY.**

The Subscriber is desirous of opening communication with some party in England for the purpose of organising the above company. One thousand acres of red hematite ore not far from the line of the C. P. R.
Address, HUBERT C. JONES, Solicitor, Brockville, Ontario, Canada.

**METALLURGICAL DEPARTMENT, KING'S COLLEGE,
LONDON.**

Under the direction of Prof. A. K. HUNTINGTON.
In the Laboratory, Metals and Alloys are examined mechanically with the aid of powerful Testing Machinery, as well as chemically. Extraction and manufacturing processes investigated, and assays and analyses made.
A FEW FREE ENTRIES to the division of studies (day or evening) are obtainable through the City and Guilds Institute.

TO COPPER SMELTERS.

A GENTLEMAN who has had 25 years' experience as Manager of Copper Works is OPEN to RE-ENGAGEMENT.
Address, "Z. H.," MINING JOURNAL Office, 26, Fleet-street, E.C.

WANTED, a FEW CAPITALISTS to join in SECURING some very valuable GOLD MINING and LAND PROPERTIES, from which large profits can be made.
For particulars apply to THOMAS CORNISH, M.E., care of MINING JOURNAL Office, 26, Fleet-street, E.C.

**ADVERTISER, with good testimonials and references SEEKS a
RE-ENGAGEMENT in GOLD or SILVER MINING** either as Manager or to report.
Address, "X. Y.," MINING JOURNAL Office, 26, Fleet-street, E.C.

**WANTED, a HORIZONTAL ENGINE, 18 or 20 inch cylinder,
not less than 5 feet stroke, with BOILER.**
Price and particulars to Capt. TEMBY, Tremedden Terrace, Liskeard, Cornwall.

**AGENCY (COPPER, &c.)—Party wishes to SELL ON
COMMISSION.** Good brand. Scotland.
Address, "No. 50," MINING JOURNAL Office, 26, Fleet-street, E.C.

**AGENTS WANTED TO PUSH FIRST-CLASS MACHINERY
OILS** commanding a large and successful sale. Liberal commission.
Address, "Box 201," Post Office, Liverpool.

**WANTED, FIVE THOUSAND TONS of IRON PYRITES.—
Analysis and price f.o.b.**
Address, "Riva," MINING JOURNAL Office, 26, Fleet-street, E.C.

MINING ENGINEER and COLLIERY VIEWER of long experience is OPEN to TAKE the MANAGEMENT of a COLLIERY or MINE at home or abroad, or to inspect and report. Thoroughly competent; skilled accountant; first-class testimonials and references; would join an established firm of Consulting Engineers or Mining Agents or Brokers.
Address, "E. 37," care of C. Birchall, Advertising Agents, Liverpool.

**ADVERTISER can PLACE PYRITES and PHOSPHATES
readily.** Also Blende, Lead, Silver, and Mixed Ores.
Only Mineowners need reply to "H.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

**HERBERTON (WILD RIVER) TIN LODES, NORTH
QUEENSLAND.**
Every information relative to the progress of lode-tin mining in the Wild River district (termed by geologists "The Cornwall of Australia") can be obtained by communicating with the undersigned. **CHARLES JENKIN.**
"Herberton Advertiser" Office Herberton, September, 1882.

Just published, price 7s. 6d., post free.

**TABLES FOR ASCERTAINING THE PRICE OF TIN ORE
AT A GIVEN STANDARD AND PRODUCE:**
To which is added Tables for Ascertaining the Value of any Quantity of Black Tin, from 1 lb. to 10 tons, at any price from £20 to £100 per ton. Originally compiled and calculated by the late Mr. R. W. WELLINGTON; and now extended, reprinted by Mr. W. BAILEY, of Camborne, and carefully verified throughout.
London: MINING JOURNAL Office, 26, Fleet-street, E.C.; and may be had by order of all Booksellers.
Australia: GEORGE ROBERTSON, Melbourne, Sydney, Adelaide, and Brisbane.

Just published.

THE NORTH WALES COAL FIELDS
Being a series of Diagrams showing the Depth, Thickness, and Local Names of the Seams in the principal Collieries of the various districts, with Index, geological Map, and horizontal sections across the Rumbon, Brymbo, Buckley, and Mostyn districts.
By JOHN BATES GREGORY and JESSE PRICE,
of Hope Station, near Mold, Flintshire.

Price: Mounted on holland, coloured and varnished, and fixed on mahogany rollers, 30s. each; or in book form, 12x3, mounted and coloured, 25s. each. May be obtained, by order, of all Booksellers, or direct from the MINING JOURNAL Office, 26, Fleet-street, London, E.C., upon remittance of Post Office Order for the amount.

M. B. S. HAMILTON (late Chief Commissioner of Mines for the Province of Nova Scotia), PRACTICAL GEOLOGIST, MINING AGENT, and MINING ENGINEER, HALIFAX, NOVA SCOTIA.
PURCHASES and SALES of MINING PROPERTY effected, with careful regard to the interests of clients.

**THE COLLIERY READY-RECKONER AND WAGES
CALCULATOR.**
By JAMES INELAND

"Will be the means of preventing many disputes between pay clerks and colliers."—Mining Journal.
To be had on application at the MINING JOURNAL Office, 26, Fleet-street, E.C.

**MONEY LENT, at EIGHT, NINE, and TEN PER CENT., on
FIRST MORTGAGE of FREEHOLDS for IMPROVEMENTS and
STOCKING, said freeholds in the Province of MANITOBA.**
Address, HENRY C. JONES, Solicitor, 20, Masonic Hall, Toronto

SALE OF CAST IRON SOLID SHOT AT THE ROYAL ARSENAL, WOOLWICH.

THE SECRETARY OF STATE FOR WAR is prepared to RECEIVE TENDERS for the PURCHASE of about SIX THOUSAND TONS OF CAST IRON SOLID SHOT.
Manufactured from Scotch Iron, and now lying at Woolwich Arsenal.
Forms of Tender and all information may be obtained on application to the Commissary General of Ordnance, Royal Arsenal, Woolwich, between the hours of Ten and Four o'clock on any day (Sundays and Saturday afternoons excepted) prior to the date for receipt of Tenders.
The Tenders are to be delivered at the War Office, Pall Mall, S.W., by Twelve o'clock noon on Friday, the 11th day of July, 1884, addressed to the Director of Army Contracts, and marked on the outside, "Tender for the Purchase of Cast Iron Shot."
EVAN COLVILLE NEPEAN,
Director of Army Contracts.
War Office, Pall Mall, S.W., 28th June, 1884.

HORSE GROVE QUARRIES, ROTHERFIELD, SUSSEX.

WHEREAS BY AN ORDER of the Chancery Division of the High Court of Justice, made in the matter of the Trusts of an Indenture dated the 5th of March, 1880, between GEORGE HENRY BRIANT of the one part, and the Rev. CHARLES WILLIAM WILLIAMS EDWARD TEMPERLEY GOULLEY and ALFRED NAPIER FORD of the other part, and in the matter of the Act, 10th and 11th Victoria, Chapter 96, and in the action MILLER v. WILLIAMS, 1884, B. 2342, the following enquiries are directed, namely (*inter alia*):—
1.—An enquiry what Debentures have been issued in pursuance of the said deed.
2.—An enquiry who are the persons now entitled to or interested in the said Debentures.
Now, pursuant to such Order, the persons claiming to be entitled to or interested in the said Debentures are, by their solicitors, on or before the 21st July, 1884, to COME IN and PROVE THEIR CLAIMS at the Chambers of the Hon. Mr. Justice PRARSON, at the Royal Courts of Justice, Strand, Middlesex; or, in default thereof, they will be peremptorily excluded from the benefit of the said Order.

TUESDAY, the 29th day of July, 1884, at One o'clock in the afternoon, at the said Chambers, is appointed for hearing and adjudicating upon the claims.
It is stated that such Debentures are a charge upon the property known as the Horse Grove Quarries, situate at Rotherfield, Sussex.

ALFRED RAWLINSON, Chief Clerk.
MILLER and MILLER, Solicitors, 13, Sherborne-lane, London, E.C.

Dated this 28th June, 1884.

**PRELIMINARY NOTICE OF A HIGHLY-IMPORTANT AND VERY
EXTENSIVE SALE OF THE WHOLE OF THE
VALUABLE PLANT AND MACHINERY**

At the Nerquis Colliery and Hendre Pits, at Nerquis, about two miles from Mold.
MESSRS. CHURTON, ELPHICK, AND CO. have been favoured with instructions from the proprietors (the coal being exhausted) TO SELL, BY AUCTION, on TUESDAY, 22nd July, 1884, and following days the WHOLE of the very costly

PLANT AND MACHINERY.

Appertaining to the above-mentioned well-known colliery and works, comprising TWENTY ENGINES of various descriptions, FIFTEEN BOILERS, six lifts of pumps, a large quantity of permanent way and pit rails, railway and pit wagons, weighing machines, lathes, and other effects.
N.B.—Full particulars with catalogues will be published in due course.

TO INVESTORS AND PROMOTERS OF PUBLIC COMPANIES.

**AN EXCEPTIONAL OPPORTUNITY OFFERS FOR THE
PURCHASE of a LARGE and VALUABLE GOLD MINING PROPERTY** (within four days' journey of London), partially developed, together with small efficient PLANT already on the spot, the whole ready for immediate working and requiring but little capital to fully develop.
Full particulars of workings and results, &c., can be obtained by letter to "W. T. C.," care of Willing's Newspaper Advertisement Offices, 125, Strand, London, W.C.

FOR SALE—

ONE 30 inch and ONE 40 inch PUMPING ENGINES, with BOILERS and FITTINGS.
ONE 22 inch ROTARY ENGINE.
ONE 12½ inch HORIZONTAL ENGINE, with CAPSTAN and HAULING MACHINE attached.
All the above Engines are in first-class condition.
Several WATER WHEELS, from 30 to 60 feet diameter. STAMPS' AXLES and a large quantity of SECONDHAND MINING MATERIALS.
Apply to—
J. AND H. PEARCE, TAVY IRONWORKS, TAVISTOCK.

**ENGINES, BOILERS, &c., FOR SALE.—
FIRST-CLASS 50-inch cylinder PUMPING ENGINE
ditto 24-inch " ROTARY ENGINE
CALCINER, &c.
Apply to Capt. NICHOLLS, Camborne.**

IMPORTANT TO MINE OWNERS.

FOR SALE, a PLANT of ROCK-DRILLING MACHINERY, quite new, comprising—
ONE AIR-COMPRESSING ENGINE, with 12 inch cylinders, 3 and 3½ in. rock drills, stretcher bars, &c., &c. Our Machines have been driving levels in hard rock 3 to 4 fathoms per week forward. Contracts undertaken.
Address,—WARSOP AND HILL, NOTTINGHAM.

**FOR SALE, at BRENDON HILLS MINES:—
ONE 28 inch cylinder PUMPING and WINDING ENGINE, stroke 9 feet, with fly wheel, winding gear attached, with one 12 ton boiler.
Also ONE 25 inch cylinder PUMPING and WINDING ENGINE, stroke 9 feet by 7, with fly wheel, winding gear attached, with one 10 ton boiler fitted with Galloway tubes.
Any further information may be obtained from Capt. HENRY SKEWIS, Brendon Hills Mines, Washford, Taunton.—Dated March 12, 1884.**

ROCK DRILL FOR SALE (Cranston's patent), double-acting air compressor, W.-I. air receiver, piping, and all fittings. Never used.
Address, JOHN PARKER, 89, West Regent-street, Glasgow.

PIT SINKING, WINDING COAL, PUMPING, &c.

PORTABLE STEAM ENGINE FOR SALE, with two 9½ inch cylinders, and link motion reversing gear also gear to wind and pump.
A 9 H.P. VERTICAL STEAM ENGINE, with link motion reversing gear (winding drum if required).
A 6 ft. pan MORTAR MILL, VERTICAL ENGINE, and BOILER combined, on carriage and travelling wheels.
Apply to—
BARROWS AND STEWART, ENGINEERS, BANBURY.

WILLIAM ELMORE (LIMITED).

OFFERS WANTED for TWO, FOUR, or SIX DEBENTURES of £50 each. For prospectus of the company, see Mining Journal of May 26, 1883. No reasonable offer will be refused. Money wanted.
Address, "Dynamo," MINING JOURNAL Office, 26, Fleet-street London, E.C.

NOTICE.—TO THE BALKIS MINING COMPANY, and others whom it may concern. That H. RODGERS and others, who are diggers in possession of the claims called the Rest Pilgrim's Rest, Transvaal Gold Fields, will not give up possession until they are fully compensated.

SILVER MINE.

WANTED, £200 to COMPLETE a SYNDICATE formed to OPEN UP a PROVED PROPERTY of believed enormous value. Investment secured against loss, with every probability of immediate large returns.
Address, "Fortuna," 8, Camden-road, Lewisham, S.E.

SUMMER TOURS IN SCOTLAND.

GLASGOW AND THE HIGHLANDS.
ROYAL ROUTE VIA CRINAN AND CALEDONIAN CANALS. Royal Mail Steamer COLUMBA for IONA, from GLASGOW daily at Seven A.M., and from GREENOCK at Nine A.M., in connection with Express Trains from London and the south, conveying PASSENGERS for OBAN, FORT WILLIAM, INVERNESS, LOCHABE, SKYE, GAILLOCH, STAFFA, IONA, GLENCOE, ISLAY, STORNOWAY, &c.
Official Guide, 2d.; illustrated, 6d. and 1s. by post: or at W. H. Smith and Son's Railway Bookstalls.
Time Bill, with Map and Fares, free from the Owner, DAVID MACBRAYNE, 119, Hope-street, Glasgow.

NOBEL'S DYNAMITE



Manufactured and sold by
NOBEL'S EXPLOSIVES COMPANY, LIMITED
(FORMERLY THE BRITISH DYNAMITE COMPANY LIMITED),

Head Office: 149, West George Street, Glasgow.

EXPORT AGENTS: JAMES THORNE AND CO., 85, GRACECHURCH STREET, LONDON, E.C.

Factories—ARDEER WORKS, STEVENSTON, Ayrshire.

WESTQUARTER WORKS, POLMONT STATION, STIRLINGSHIRE.

REDDING MOOR WORKS, POLMONT STATION, STIRLINGSHIRE.

Supplies may be obtained from any of the following District Agents of the Company in Great Britain:—

HENRY KITCHIN and CO., 46, Lowther-street, Whitehaven.

F. H. EDWARDS, Forth House, Newcastle-on-Tyne.

JAMES M. ARMSTRONG and CO., Middlesbro'-on-Tees.

ALBERT RICKETTS, Dean-lane, Bedminster, Bristol.

B. READ, Reforme, Portland, Dorsetshire.

LEIGH and SILLAVAN, Barton House, 66, Deansgate, Manchester.

GEORGE ROBERTS, George-street, Gloucester.

J. H. BEAN and CO., 6, Albion-street, Leeds.

Wm. RICH and SONS, 4, Basset-street, Redruth, Cornwall.

CROSS BROTHERS, 21, Working-street, Cardiff.

WILLIAMS and WHITE, 6 and 7, Baker-street, Aberystwith.

WEBB and CO., Llanberis, Caernarvon.

J. T. EACHUS, Holywell, Flintshire.

T. G. MARSH, 2, Priory-street, Dudley.

TODHUNTER and ELLIOT, Market-place, Douglas, Isle of Man.

ROBERT HAMILTON, 29, St. James-square, Edinburgh.

JOHN DONALD, 4, Belmont-street, Aberdeen.

WILLIAM WATSON, Stirling-street, Coatbridge.

ROBERT HAMILTON, Douglas-street, Dunfermline.

JOHN D. M'JANNET, Woodlands, Stirling.

GEORGE STEPHEN and SON, Castle-street, Dundee.

WAUGH, WALSH, and CO., 73 and 75, Church-lane, Belfast.

CLOHERTY and SEMPLE, Merchants'-road, Galway.

COOKE BROTHERS, 67, Patrick-street, Cork.

SAMUEL BOYD, 46, Mary-street, Dublin.

JOHN LEALE, St. Sampson's Bridge, North End, Guernsey.

TONITE, OR COTTON POWDER,

IS RECOMMENDED TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, AS BEING

THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES

TONITE is the most efficient and economical blasting agent ever invented, and is largely in demand. It does not contain any Nitro-glycerine, and is, therefore, exempt from the dangers of exudation, or of freezing and its attendant process of thawing.

The Company manufacture

PATENT DETONATORS

of a quality much superior to the foreign article. Also supply Safety Fuse and Electric Firing Appliances of best description. The trade supplied on favourable terms.

ADDRESS—THE COTTON POWDER COMPANY (LIMITED)

23, QUEEN ANNE'S GATE, LONDON, S.W.

WORKS: FAVERSHAM, KENT.

Agents: DINEEN and Co., Leeds; DAVID BURNS, Haltwhistle; R. J. CUNNACK, Helston, Cornwall; J. and W. SMITH, Chapel-en-le-Frith; W. VEITCH, Jedburgh, N.B. W. HARRISON, Barrow-in-Furness; W. J. PARRY, Bangor; HUNTER and FOTHERINGHAM, Glasgow.

RHENISH DYNAMITE COMPANY.



OF THE GREATEST STRENGTH ALLOWED BY THE EXPLOSIVES ACT.

OFFICES.—

1, Coleman Street Buildings, Moorgate Street, London, E.C.

LONDON AGENT.—E. KRAFTMEIER & CO., 5, GREAT WINCHESTER STREET BUILDINGS, LONDON, E.C.

NOBEL'S DYNAMITE.



MANUFACTURED AND SOLD BY THE

DYNAMIT-ACTIEN-GESELLSCHAFT

VORMALS ALFRED NOBEL & CO., HAMBURG.

(HAMBURG DYNAMITE COMPANY, LIMITED),

Formerly ALFRED NOBEL & CO.

Factories { KRÜMMEL AND SCHLEBUSCH, IN GERMANY.

ZAMKY AND PRESBURG, IN AUSTRIA HUNGARY.

LONDON OFFICE: 42, BASINGHALL STREET, E.C.

For Excellence
and Practical Success
of Engines.



Represented by
Model exhibited by
this Firm.

HARVEY AND CO

(LIMITED)

ENGINEERS AND GENERAL MERCHANTS,
HAYLE, CORNWALL.

LONDON OFFICE.—186, GRESHAM HOUSE, E.C.

MANUFACTURERS OF

PUMPING and other LAND ENGINES and MARINE STEAM ENGINES
of the largest and most approved kinds in use, SUGAR MACHINERY,
MILLWORK, MINING MACHINERY, and MACHINERY IN GENERAL.

SHIPBUILDERS IN WOOD AND IRON.

MANUFACTURERS OF

HUSBAND'S PATENT PNEUMATIC STAMPS

SECOND-HAND MINING MACHINERY FOR SALE

IN GOOD CONDITION, AT MODERATE PRICES—viz.

PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES,
STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK
of various sizes and descriptions; and all kinds of MATERIALS required for
MINING PURPOSES



PACIFIC IRON WORKS
RANKIN, BRAYTON, AND CO.,

For Copper and Argentiferous Galena Ores.

GENERAL OFFICE AND WORKS,

San Francisco, Cal., U.S.A.

BRANCH WORKS.—CHICAGO, ILLINOIS, U.S.A.

The Pacific Water Jacket Smelters embrace many features that
are entirely new and of great practical utility, which are secured
by letters patent.

No other furnaces can compare with these for durability, and in
capacity for continuous and interrupted work.

More than One Hundred

of them are now running in the various mining districts of the
United States, giving results never before obtained as regards con-
tinuous running, economy of fuel grade and quality of bullion
produced.

These Smelters are shipped in a complete state, requiring no
brick or stone work, thus saving great expense and loss of time in
construction.

Complete smelting plants made to order, with all the improve-
ments that experience has proved valuable in this class of machinery.
Skilled and experienced smelters furnished when desired to examine
mines and to superintend constructing and running of furnaces
Estimates given upon application. Send for circular.

We refer to A. S. CHURCH, Esq., 118, LEADENHALL STREET,
E.C., LONDON.

THE
BEST METAL FOR BUSHES,
BEARINGS,
SLIDE VALVES,

And other wearing parts of Machinery.

PUMPS, PLUNGERS,

CYLINDERS, &c.

PHOSPHOR BRONZE

WIRE, TUBES

SHEET, RODS

TOOLS &c.

STEAM

FITTINGS

SOLE

MANUFACTURERS

UNDER PATENTS

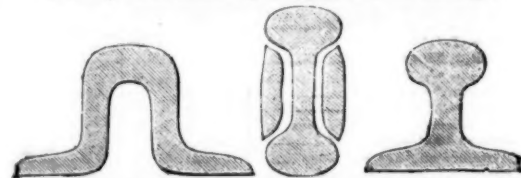
THE

PHOSPHOR BRONZE

COMPANY, LIMITED,

SUMNER STREET, SOUTHWARK
LONDON, S.E.

JOHN BEATSON & SON,
40h, St. Mary's Gate, Derby.



IRON AND STEEL RAILS, of all sections, from 10 to 86 lbs. per
yard, new perfect, new slightly defective, or second-hand, with Fish-plates,
Bolts and Nuts, Chairs, Spikes, and Points and Crossings to match, when re-
quired.

STEEL AND IRON WIRE ROPES, LOCOMOTIVE ENGINES, &c., &c.

BARS, PLATES, SHEETS, &c.

STEEL OF ALL KINDS. FIG IRON OF ALL KIND

Delivered at all Railway Stations and Ports in Great Britain.

WILLIAM BENNETTS,

PATENT MINERS'

SAFETY FUSE

MANUFACTURER.



This manufacture embraces all the latest improvements for use in
Blasting in Mines, Quarries, or for Submarine Purposes; and is
adapted for exploding Gunpowder, Dynamite, or any other Exple-
sive; and is made suitable for exportation to any part of the world.
Price Lists and Sample Cards on application.

All communications to be addressed—

ROSKEAR FUSE WORKS,
CAMBORNE CORNWALL.

CALIFORNIAN AND EUROPEAN AGENCY.
609, MONTGOMERY STREET, SAN FRANCISCO CAL.

J. JACKSON, Manager

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Divid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
12000 Bedford Unit, c, Tavis. (21 lib.)	1 0	0	1 1/4	1 1/4	0 0	1 0
3200 Blue Hills, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 Cam Brea, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
4000 Cragmant Brea, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
10240 Devon Gr. Consols, c, Tavis. (21 lib.)	1 0	0	1 1/4	1 1/4	0 0	1 0
4700 Dolcoath, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6400 East Pool, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
12000 Great Holway, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
15000 Great Laxey, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6400 Green Hurth, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
9200 Gunnsake (Clitters), c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
2800 Isle of Man, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 Killfret, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
20000 Leadhills, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
400 Lieburne, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
10000 Mellanear, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
9000 Mining Co. of Ireland, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
11820 North Hendre, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
8140 Ditto	1 0	0	1 1/4	1 1/4	0 0	1 0
4760 Penhall, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
12000 Phoenix United, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
12000 Roman Gravel, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6120 South Condurow, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
9000 South Darren, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 Tincroft, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
15000 Van, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
15000 West Holway, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 West Raset, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 West Killy, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 Wheel Agart, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
12000 Wheel Carbor, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
10240 Wheel Eliza Consols, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
6000 Wheel Grenville, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
4290 Wheel Killy, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0
3000 Wheel Peavor, c, St. Agnes	1 0	0	1 1/4	1 1/4	0 0	1 0

FOREIGN DIVIDEND MINES.

Shares.	Divid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35000 Alamos, c, Spain	2 0	0	1 1/4	1 1/4	0 0	2 0
130000 Almaden and Tinto Consols, c, Spain	1 0	0	1 1/4	1 1/4	0 0	1 0
20000 Australian, c, South Australia	7 0	0	1 1/4	1 1/4	0 0	7 0
15000 Birdseye Creek, c, California	4 0	0	1 1/4	1 1/4	0 0	4 0
30000 Bratsberg, c, Norway	1 0	0	1 1/4	1 1/4	0 0	1 0
130000 California, c, Colorado	1 0	0	1 1/4	1 1/4	0 0	1 0
20000 Cape Copper Mining, c, South Africa	8 0	0	1 1/4	1 1/4	0 0	8 0
65000 Colorado United, c, Colorado	1 0	0	1 1/4	1 1/4	0 0	1 0
50000 Copalaco, c, Chile (24 shares)	1 0	0	1 1/4	1 1/4	0 0	1 0
70000 English and Australian, c, St. Aust.	2 0	0	1 1/4	1 1/4	0 0	2 0
2000 Eng. Aus., c, Viet. (20000 o.)	1 0	0	1 1/4	1 1/4	0 0	1 0
25000 Fortuna, c, Spain	2 0	0	1 1/4	1 1/4	0 0	2 0
72000 Frontino & Bolivia, c, New Gran.	1 0	0	1 1/4	1 1/4	0 0	1 0
40000 La Plata, c, Leadville	1 0	0	1 1/4	1 1/4	0 0	1 0
5000 Linars, c, Spain	3 0	0	1 1/4	1 1/4	0 0	3 0
20000 Marbella Iron Ore, c, Spain	10 0	0	1 1/4	1 1/4	0 0	10 0
185164 Mason & Barry, c, Portugal	10 0	0	1 1/4	1 1/4	0 0	10 0
100000 Oxford, c, Nova Scotia	10 0	0	1 1/4	1 1/4	0 0	10 0
80000 Quebrada, c, Land & Cop. Venezuela	10 0	0	1 1/4	1 1/4	0 0	10 0
50000 Panguillo, c, Chile	4 0	0	1 1/4	1 1/4	0 0	4 0
25000 Pitagui, c, Brazil (10000 & 1 pd.)	10 0	0	1 1/4	1 1/4	0 0	10 0
1400 Pontal, c, France	20 0	0	1 1/4	1 1/4	0 0	20 0
100000 Port Phillip, c, Clunes (22 shares)	1 0	0	1 1/4	1 1/4	0 0	1 0
50000 Rara Fortuna, c, Argent. Republic	1 0	0	1 1/4	1 1/4	0 0	1 0
54000 Richmond Consol., c, Nevada	5 0	0	1 1/4	1 1/4	0 0	5 0
24536 Rio Tinto, c, Mortgage Bds. Huelva	100 0	0	1 1/4	1 1/4	0 0	100 0
325000 Ditto	10 0	0	1 1/4	1 1/4	0 0	10 0
40000 Santa Barbara, c, Brazil	10 0	0	1 1/4	1 1/4	0 0	10 0
122000 Schwabe Gully, c, Kimberley	10 0	0	1 1/4	1 1/4	0 0	10 0
120000 Scottish-Australian Mining Co., c, St. Aust.	1 0	0	1 1/4	1 1/4	0 0	1 0
80000 Ditto	10 0	0	1 1/4	1 1/4	0 0	10 0
22500 Sierra Buttes, c, California	2 0	0	1 1/4	1 1/4	0 0	2 0
4025 Ditto	2 0	0	1 1/4	1 1/4	0 0	2 0
253000 St. John del Rey (165 Stock and multiple debt in)	80 0	0	1 1/4	1 1/4	0 0	80 0
160000 Thabacherry, c, Wynad	1 0	0	1 1/4	1 1/4	0 0	1 0
625000 Thabacherry, c, Wynad (58720 issued)	5 0	0	1 1/4	1 1/4	0 0	5 0
14000 Tolima, c, Colombia (2 shares)	5 0	0	1 1/4	1 1/4	0 0	5 0
6000 Ditto	5 0	0	1 1/4	1 1/4	0 0	5 0
25000 Victoria (London), c, Australia	1 0	0	1 1/4	1 1/4	0 0	1 0
124221 United Mexican, c, Mexico	9 17	0	1 1/4	1 1/4	0 0	9 17
100000 Victorine (Nevada, U.S.) Deb. Bds.	1 0	0	1 1/4	1 1/4	0 0	1 0
15000 Western Andes, c, Colombia	5 0	0	1 1/4	1 1/4	0 0	5 0
2100 W. Prussian (55000 pref. sh. 210 pd.)	10 0	0	1 1/4	1 1/4	0 0	10 0
64800 Yorke Pen., c, South Aust. Pref. 100	1 0	0	1 1/4	1 1/4	0 0	1 0

Have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Shares.	Divid.	Last wk.	Clos. pr.
25000 Aberdura, c, Denbigh	1 10	0	1 1/4
12000 Anderson, c, St. Agnes	1 2	0	1 1/4
12000 Asheton, c, Carnarvonshire	5 0	0	1 1/4
10000 Brads, c, Isle of Man	1 0	0	1 1/4
30000 British, c, St. Agnes	1 0	0	1 1/4
20000 British Mangrove Company	1 0	0	1 1/4
20000 Blwich United, c, Cardigan	1 0	0	1 1/4
12000 Collacombe Consols, c, St. Agnes	0 2	0	1 1/4
50000 Carn Camborne, c, St. Agnes	1 0	0	1 1/4
37500 Carnarvonshire Cons., c, St. Agnes	2 0	0	1 1/4
6400 Oathwell, c, St. Agnes	2 10	0	1 1/4
6000 Cathedral, c, St. Agnes	1 7	0	1 1/4
20000 Central Foxdale, c, St. Agnes	1 17	0	1 1/4
20000 Ood-y-Podw-Pant-y-Buarth, c, St. Agnes	1 10	0	1 1/4
24500 Cook's Kitchen, c, St. Agnes	35 14	0	1 1/4
50000 Oredig, c, St. Agnes	0 17	0	1 1/4
38400 Crook Burn, c, St. Agnes	0 17	0	1 1/4
48720 D'Essey Mountain, c, St. Agnes	0 10	0	1 1/4
12000 Derwent, c, St. Agnes	4 0	0	1 1/4
60000 Devon Friendship, c, St. Agnes	1 10	0	1 1/4
12000 Devon Great United, c, St. Agnes	1 10	0	1 1/4
50000 Drake, c, St. Agnes	0 15	0	1 1/4
50000 Duchy Per., c, St. Agnes	0 10	0	1 1/4
12000 East Blue Hills, c, St. Agnes	0 5	0	1 1/4
6000 East Botallack, c, St. Agnes	1 2	0	1 1/4
6144 East Caradon, c, St. Agnes	5 1	0	1 1/4
4000 East Chiverton, c, St. Agnes	10 17	0	1 1/4
30000 E. Craven Moor, c, St. Agnes	1 0	0	1 1/4
15000 East Devon Cons., c, St. Agnes	2 0	0	1 1/4
20000 East Long Rake, c, St. Agnes	1 0	0	1 1/4
25500 East Roman Gravel, c, St. Agnes	1 0	0	1 1/4
18000 East Van, c, St. Agnes	5 0	0	1 1/4
2048 East Wheel Lovell, c, St. Agnes	18 18	0	1 1/4
100000 East Wheel Ross, c, St. Agnes	1 0	0	1 1/4
25000 Eton, c, St. Agnes	1 0	0	1 1/4
12500 Frongoch, c, St. Agnes	2 0	0	1 1/4
12000 Gawton, c, St. Agnes	2 5	0	1 1/4
12000 Gabbett, c, St. Agnes	1 0	0	1 1/4
10000 Gobbett, c, St. Agnes	1 0	0	1 1/4
32000 Goginan, c, St. Agnes	1 0	0	1 1/4
25000 Goodever, c, St. Agnes	1 0	0	1 1/4
8500 Gorse and Merlyn Cons., c, St. Agnes	2 10	0	1 1/4
6000 Great West Chiverton, c, St. Agnes	0 6	0	1 1/4
50000 Great W. Shepherds, c, St. Agnes	1 0	0	1 1/4
10000 Grovwinion, c, St. Agnes	2 0	0	1 1/4
15000 Gwynedd, c, St. Agnes	4 0	0	1 1/4
75000 Gwydyr Aml, c, St. Agnes	1 0	0	1 1/4
6400 Hardshill, c, St. Agnes	0 2	0	1 1/4
12000 Herodfoot, c, St. Agnes	1 0	0	1 1/4
18000 Herodfoot, c, St. Agnes	0 13	0	1 1/4
35000 Holway Consols, c, St. Agnes	1 0	0	1 1/4
25000 Kilt Hill Gr. Cons., c, St. Agnes	1 2	0	1 1/4
15000 Lady Ann, c, St. Agnes	1 0	0	1 1/4
15000 Lady Ann, c, St. Agnes	1 0	0	1 1/4
5120 Lovell, c, St. Agnes	0 16	0	1 1/4
9000 Marke Valley, c, St. Agnes	7 12	0	1 1/4
6000 Maridyn Moor, c, St. Agnes	3 15	0	1 1/4
8000 Mena, c, St. Agnes	5 0	0	1 1/4
20000 Mena Consols, c, St. Agnes	1 0	0	1 1/4
20000 Mena Consols, c, St. Agnes	1 0	0	1 1/4
12000 Morfa Du, c, St. Agnes	1 0	0	1 1/4
60000 Mounts Bay, c, St. Agnes	1 0	0	1 1/4
6144 Mount Carbis, c, St. Agnes	1 15	0	1 1/4
12000 New Caradon, c, St. Agnes	0 5	0	1 1/4
2400 New Cook's Kitchen, c, St. Agnes	10 5	0	1 1/4
5000 New Dolcoath, c, St. Agnes	3 0	0	1 1/4
10000 New Holmbush, c, St. Agnes	3 0	0	1 1/4
6000 New Killy, c, St. Agnes	1 2	0	1 1/4
25000 New Langford, c, St. Agnes	2 2	0	1 1/4
15000 New Redmoor, c, St. Agnes	1 0	0	1 1/4
17500 New Teras, c, St. Agnes	1 0	0	1 1/4
3500 New Tincroft, c, St. Agnes	6 0	0	1 1/4
12000 New Trumpett, c, St. Agnes	1 0	0	1 1/4
30000 New Van Cons., c, St. Agnes	7 0	0	1 1/4
12000 New West Caradon, c, St. Agnes	0 7	0	1 1/4
3000 New Wheel Peavor, c, St. Agnes	0 10	0	1 1/4
12000 North Blue Hills, c, St. Agnes	0 2	0	1 1/4
3228 North Busy, c, St. Agnes	2 4	0	1 1/4
10000 North Goginan, c, St. Agnes	1 0	0	1 1/4
25000 North Green Hurth, c, St. Agnes	1 0	0	1 1/4
25000 North Grovwinion, c, St. Agnes	1 0	0	1 1/4
12000 North Herodfoot, c, St. Agnes	0 13	0	1 1/4
2000 North Levant, c, St. Agnes	13 10	0	1 1/4

NON-DIVIDEND MINES—continued.

Shares.	Divid.	Last wk.	Clos. pr.
80000 North Molton, * c, m, s, Devon.....	1 0 0	—	—
8000 North Penstruthal, t, c, Gwynnapp.....	3 9 0	3/4	3/4
2938 North Trekerby, c, St. Agnes.....	1 0 0	—	—
8000 Northern, * t, Durham.....	8 17 10	—	—
40000 Okel Tor, * t, c, a, Calstock.....	1 0 0	—	—
80000 Old Shepherds s-l, Cornwall.....	1 0 0	3/4	3/4
60000 Owen Veau & Tregur, * t, c, Marazion.....	1 0 0	1 1/4	1 1/4
45000 Parys Corporation, * c, Anglesea.....	1 0 0	1s.	ed. 1
7500 Pateley Bridge, t, Yorkshire.....	1 0 0	—	—
6000 Pedin-an-drea, t, Redruth.....	4 10 0	3/4	3/4
6000 Pennant, t, bar, North Wales*.....	5 0 0	5/8	5/8
20000 Penegarg, t, Carmarthenshire.....	1 0 0	—	—
15000 Pen-y-Orsedd, * t, Flintshire.....	1 0 0	3/4	3/4
15000 Perran Consols, * t, Cornwall.....	1 0 0	—	—
12000 Perran Wheal Alfred, c.....	0 2 8	—	—
10000 Polberro, t, St. Agnes.....	0 2 0	1 1/4	1 1/4
8000 Polcraeo, t, Crowan.....	0 13 6	1 1/4	1 1/4
4516 Polrose, t, Cornwall.....	1 12 0	3/4	3/4
10000 Port Nigell Sny, * s-l, Carnar. (4000 ls.).....	0 15 0	—	—
13000 Pr. Patrick, * s-l, (als. 12000 pf. 10 p.c.).....	1 0 0	—	—
12000 Prince of Wales, c, t, Calstock.....	1 0 0	3/4	3/4
36000 Russell United, * c, Tavistock.....	0 15 6	3/4	3/4
30000 Silver Hill, * c, Callington.....	1 0 0	—	—
50000 Sinclair, * t, bt, Whitford.....	1 0 0	—	3/4
40000 Sortridge, c, t, Horrabridge.....	1 0 0	3/4	3/4
50000 South Caradon, * c, St. Cleer.....	0 15 0	1 1/4	1 1/4
6000 South Carbis, t, c, Redruth.....	0 10 0	1 1/4	1 1/4
4200 So. Devon Unit., * c, Blackfastleigh.....	0 10 0	1 1/4	1 1/4
5000 South Dolcoath, c, t, Illogan.....	0 19 0	1 1/4	1 1/4
6000 South Killy, t, St. Agnes.....	0 10 0	3/4	3/4
6000 South Penstruthal, t, c, Gwynnapp.....	3 16 0	3/4	3/4
3000 So. Phenix & Caradon, t, c, t, Linkinhn.....	1 0 0	3/4	3/4
6000 South Tolarne, t, c, t, Camborne.....	5 11 6	1 1/4	1 1/4
2043 South Wheal Crofty, c, Illogan.....	7 4 6	3/4	3/4
6000 South Wheal Frances, t, Illogan.....	9 19 4	8 1/4	8 1/4
30000 Standard, * t, bt, Llanrwst.....	1 0 0	1 1/4	3/4
40000 Tamar, s-l, Bearaiston.....	1 0 0	—	—
12000 Trebartha Lemanne, t, Northill.....	0 6 3	—	—
6000 Tregemho, t, c, Cornwall.....	4 0 0	—	—
50000 Tregontrea and Old Polgooth Con.....	1 0 0	3/4	3/4
10000 Tregontrea, c, Gwynnapp.....	0 10 0	3/4	3/4
8000 Trevaunance, t, St. Agnes.....	0 6 0	2 1/4	1 1/4
1000 Vaughan, * t, Cardiganshire.....	10 0 0	—	—
50000 Weardale, * t, Northumber. (41. share).....	1 2 6	1 1/4	1 1/4
12000 West Assheton, t, Carnarvon.....	1 0 0	—	—
12000 West Caradon, c, St. Cleer.....	0 9 3	1 1/4	2s. 1
30000 West Cornwall, * t, Cornwall.....	1 0 0	4s.	1 1/4
30000 W. Gwennap Foot, t, Pateley Bridge.....	10 0 0	—	—
12000 West Gwennap, t, Tavistock.....	0 11 8	3/4	3/4
10240 West Devon Consols, c, Calstock.....	0 11 8	3/4	3/4
10000 West Godolphin, t, c, Breage.....	1 3 6	1 1/4	1 1/4
12000 West Gonamden, c, St. Cleer.....	0 1 0	3/4	3/4
20000 West Lisburne, * t, Cardigan.....	1 0 0	3/4	3/4
3000 West Mary Ann, t, Menheniot.....	1 18 0	3/4	3/4
20000 W. Pateley Bridge, t, Yorkshire.....	1 0 0	—	—
12000 West Phenix, t, Linkinhorne.....	1 5 0	3/4	3/4
6000 West Penryn, t, St. Agnes.....	0 10 0	3/4	3/4
12000 West Poldice, t, Day.....	0 10 0	3/4	3/4
6144 West Wheal Frances, t, Illogan.....	14 10 0	5 1/4	5 1/4
3000 West Wheal Pevor, t, Redruth.....	4 10 6	3/4	3/4
6144 Wheal Bassett, c, Illogan.....	9 9 6	3 1/4	2 1/4
4000 Wheal Benny, t, c, Latchley.....	5 0 0	—	—
3000 Wheal Boys, t, Redruth.....	1 3 6	—	—
50000 Wheal Castle, * c, t, St. Just.....	1 0 0	1 1/4	3/4
12000 Wheal Coates, t, St. Agnes.....	0 10 0	3/4	3/4
2585 W. Comf., & No. Treas, t, c, Gwynnapp.....	2 2 0	1 1/4	1 1/4
50000 Wheal Elizabeth, * t, Cornwall.....	1 0 0	—	—
12238 Wheal Jane, t, Kea.....	3 6 0	3/4	3/4
12000 Wheal Jewell, c, St. Hilary.....	1 0 6	3/4	3/4
25000 Wh. Honey and Trellawny, s-l, Lisk.....	2 0 0	—	—
12000 Wheal Lusk, t, Callington.....	0 3 8	3/4	3/4
2000 Wheal Owles, t, St. Just.....	7 3 0	—	—
30000 Wh. Silvers, t, Lanteglos, t, Camefeld.....	1 0 0	1 1/4	3/4
8000 Wheal Sisters, t, Lelant.....	1 2 0	3/4	3/4
4098 Wheal Uny, t, c, Redruth.....	19 13 6	3/4	3/4
21866 Wye Valley, t, Montgomery.....	1 0 0	—	—
60000 Yealand Consols, * t, Devonshire.....	0 12 6	3/4	3/4
4000 Yetwith, * t, Cardigan.....	1 0 0	—	—

.., seconds; c, copper; g, gold; t, lead; s, silver; st, slate.
s-l, silver-lead; t, tin; z, zinc; f, iron; a, arsenic; d, diamond.
Limited Liability Companies; † quoted on the Stock Exchange.
I have paid dividends.